Organized by:

Hosted by:

ROSCOSMOS

GLEX 2021

GLOBAL SPACE EXPLORATION CONFERENCE

14 - 18 JUNE 2021

St. Petersburg, Russian Federation

FINAL PROGRAMME

60th Anniversary of
Yuri Gagarin's Spaceflight

www.glex2021.org

ROSCOSMOS

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S.P. KOROLEV
ROCKET AND SPACE
CORPORATION ENERGIA

60th ANNIVERSARY of 1st HUMAN SPACEFLIGHT 1961-2021

CONTENTS

1 WELCOME MESSAGES

1.1 Welcome Message from International Astronautical Federation (IAF)

Dear Colleagues,

Greetings!

As President of the International Astronautical Federation (IAF), I take great pride in welcoming all the attendees of the Global Space Exploration Conference – GLEX 2021.

Space Exploration is one of the most important aspects of the universe. Humanity's interest in the cosmos has been universal and enduring. Humans are driven to explore the unknown and as a species, we have made great strides in spaceflight and space exploration in the relatively short amount of time since such feats were first accomplished. As the 21st century gets further underway, the impact of space exploration upon the welfare of humanity will only increase.

This first in-person conference, since the beginning of the global pandemic, shows is the evidence of the great interest in there is for space exploration. After the United States in 2012, and China in 2017, the IAF is proud to offer the space community and the greater public, the unique opportunity to gather again in Russia, another leading nation in space exploration, for the third edition of the Global Space Exploration Conference.

This is also the occasion to celebrate the 60th anniversary of Yuri Gagarin's spaceflight. The first man to reach space and circle our beautiful Earth aboard the Vostok 1 spacecraft. His mission was one of the defining moments of the 20th century and changed space history and the perception of all humankind forever. GLEX 2021 could not come at a better time to celebrate this anniversary, takinge a look back at the past 60 years of space exploration and see how far we, as a global space community, have come and also looking at the future of space exploration.

I wish you all a fantastic and exciting time here in St. Petersburg, in the name of space exploration for the benefit of humankind.

Pascale Ehrenfreund
President,
International Astronautical Federation (IAF)

1.2 Welcome Message from State Space Corporation ROSCOSMOS

Dear Delegates,

On behalf of State Space Corporation ROSCOSMOS, we are delighted to welcome you to the Global Space Exploration Conference 2021 (GLEX 2021) that is being held on 14-18 June 2021 in Saint Petersburg, Russian Federation, the city that is known to be one of the most attractive business and tourist destinations around the world.

Humanity has always dreamed of conquering space. We proudly recall Yuri Gagarin's first spaceflight. In 2021, we celebrate the 60th anniversary of this significant event with which the era of practical space exploration began and totally changed the world forever. Later, we also witnessed the first woman to go into space, the first spacewalk and human landing on the Moon.

Nowadays the international space community is concentrating on the Moon exploration and onwards to crewed flights to Mars. At the same time, unmanned spacecraft are already actively exploring the Moon, Mars and other objects of the Solar system.

ROSCOSMOS pays attention to achieve our common goal to preserve outer space for peaceful exploration for present and future generations. And this great task could be solved through the international cooperation only!

That's why the main goal of GLEX 2021 is to bring together scientists, engineers, lawyers and students from different countries who want to study and explore space, want to share their thoughts and plans, and are ready to discuss them with colleagues. Only in such close cooperation and mutual understanding, we will be able to implement ambitious projects on the Moon, Mars and beyond the Solar system.

In this regard, during our Conference we plan to discuss the full range of issues related to space exploration: crewed spaceflights, research of objects of the Solar system and the Universe, astronomical and astrophysical research and so on.

With respect to the programme of the Conference, it contains: plenary sessions, one of them is devoted to 60th anniversary of Yuri Gagarin's spaceflight, an IAF Global Networking Forum, technical sessions, a specialized exhibition, a Welcome Reception on behalf of State Space Corporation ROSCOSMOS and a Gala Dinner on behalf of Saint Petersburg.

A separate day, 14 June 2021, is devoted to young professionals and students who will define the future of space exploration. In addition, a rich cultural and excursion programme awaits GLEX 2021 participants. Saint Petersburg is the historical and cultural capital of the Russian Federation, so magnificent architecture will take you back in time to 18th and 19th century of Imperial Russia with its beautifully built palaces, mansions and bridges.

Taking into account the abovementioned, we are confident that GLEX 2021 will be an outstanding scientific event that will contribute to strengthen the links between the Russian Federation and the rest of the world, among present and future generations of specialists in the field of space exploration activities.

We are glad to welcome you all in Saint Petersburg at a memorable conference GLEX 2021!

Dmitry Rogozin
Director General,
State Space Corporation ROSCOSMOS,
Russian Presidential Envoy for International Space Cooperation

Sergey Saveliev
Deputy Director General,
State Space Corporation ROSCOSMOS,
Vice President for Relations with International Organizations of the International Astronautical Federation (IAF)

1.3 Welcome Message from the IPC Co-Chairs

Dear fellow members of the global space exploration community,

We look forward to welcoming you to the Global Space Exploration Conference 2021 in St. Petersburg! GLEX 2021 is jointly organized by the International Astronautical Federation and ROSCOSMOS and follows the successful GLEX 2012 in Washington, D.C. and GLEX 2017 in Beijing.

Space Exploration has been a dream of many for a long time. Beginning in the middle of the last century humanity has started to turn this dream into reality. We remember with pride the first artificial satellite, Gagarin's spaceflight, the first woman in space, the first spacewalk, and the first steps by man on the Moon. International partnerships have become ever more important, and today the International Space Station, the biggest and largest human-made space object, serves as a unique science laboratory in Earth orbit.

We stand today at a truly transformational time in space exploration. Humanity's gaze is now often focused ever further out – to the Moon, and Mars, and beyond. Robotic and human lunar missions are being planned and implemented by both governments and private industry around the world. Others are planning lunar bases and villages. Others are developing missions to explore Mars, or to mine asteroids. One of the remarkable aspects of the global space world today is how commercially funded space exploration activities are becoming an ever more common compliment to government-led space programmes.

Against this exciting backdrop, GLEX 2021 will bring together all the key space exploration players for a week in wonderful St. Petersburg this coming summer. Space agency leaders, captains of industry, academic researchers, policy experts, entrepreneurs, and other enthusiasts are invited to exchange ideas, report on results, share visions, and together make space exploration plans. Delegates will be able to inform themselves about programmes around the world and establish and advance international partnerships to turn exploration dreams into reality.

We encourage all who are active and interested in moving humanity beyond the boundaries of the known world to join us for GLEX 2021 on 14-18 June 2021 in St. Petersburg!

Christian Sallaberger
Chair, IAF Space Exploration Committee,
International Astronautical Federation (IAF),
President, Canadensys,
Canada

Sergey Krikalev
Past VP for International Relations and Outreach,
International Astronautical Federation (IAF),
Special Advisor to the Director General,
State Space Corporation ROSCOSMOS,
Russian Federation

2 ORGANIZERS INFORMATION

2.1 International Astronautical Federation (IAF)

Founded in 1951, the International Astronautical Federation is the world's leading space advocacy body with more than 407 members, 71 countries on six continents, including all leading agencies, space companies, societies, associations and institutes worldwide.

Following its theme *"A space-faring world cooperating for the benefit of humanity"*, the Federation advances knowledge about space and fosters the development and application of space assets by advancing global cooperation.

As the organizer of the annual International Astronautical Congress (IAC), and other meetings on specific space-related topics, the IAF actively encourages the development of astronautics for peaceful purposes and supports the dissemination of scientific and technical information related to space.

International Astronautical Federation (IAF)

100 Avenue de Suffren
75015 Paris
France

Phone: +33 1 45 67 42 60
Website: www.iafastro.org

Email: info@iafastro.org

Connecting @ll Space People

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2.2 State Space Corporation ROSCOSMOS

ROSCOSMOS is a State Corporation that was established in August 2015 to oversee and implement a comprehensive reform of the Russian space industry.

State Space Corporation ROSCOSMOS ensures the implementation of the Russian government's space program and its legal regulation. ROSCOSMOS is also placing orders for the development, manufacture and supply of space equipment and space infrastructure objects.

The state corporation is also responsible for international space cooperation and tasked with setting the stage for the future use of results of space activities in the social and economic development of the Russian Federation.

State Space Corporation ROSCOSMOS

42, Schepkina st.,
Moscow, 107996
Russian Federation

Phone: + 7 (495) 631-9-888, 7 (495) 631-90-00
Email: info@roscosmos.ru

Fax: +7 (495) 631-9900
Website: www.roscosmos.ru

2.3 Local Organizing Committee

Chair

Sergey Saveliev
Deputy Director General, International Cooperation,
State Space Corporation ROSCOSMOS

Co-Chair

Maksim Sokolov
Vice-Governor, Saint Petersburg

Vice Chair

Sergey Krikalev
Special Advisor to the Director General,
State Space Corporation ROSCOSMOS

Members

Tatiana Tishchenko
Director, International Cooperation Department,
State Space Corporation ROSCOSMOS

Sergey Korneev
Chairman, Committee for Tourism Development,
Saint Petersburg

Dmitry Shishkin
Director, Administration Department,
State Space Corporation ROSCOSMOS

Ekaterina Volkhonskaya
Director General, Convention Bureau,
Saint Petersburg

Vladimir Ustimenko
Head of Press Service,
State Space Corporation ROSCOSMOS

Dmitry Loskutov
Director General, JSC Glavkosmos

Kirill Porvatov
Director General, ANO Corporate Academy of ROSCOSMOS

2.4 International Programme Committee Co-Chairs

Christian Sallaberger
Chair, IAF Space Exploration Committee,
International Astronautical Federation (IAF),
President, Canadensys,
Canada

Sergey Krikalev
Past VP for International Relations and Outreach,
International Astronautical Federation (IAF),
Special Advisor to the Director General,
State Space Corporation ROSCOSMOS,
Russian Federation

2.5 International Programme Committee Members

Khaled Al Hashmi
UAE Space Agency, UAE

Salem Humaid Al Marri
Mohammed Bin Rashid Space Centre, UAE

Oleg Alifanov
Moscow Aviation Institute, Russian Academy of Sciences, Russian Federation

Alain Bories
OHB System SE, Germany

Pierre W. Bousquet
Centre National d'Etudes Spatiales (CNES), France

Kammy Brun
China Head Aerosapce Technology Group, China

Bruce Chesley
The Boeing Company, USA

J.R. Edwards
Lockheed Martin Corporation, USA

Matteo Emanuelli
Space Generation Advisory Council (SGAC), Austria

Christian Feichtinger
International Astronautical Federation (IAF), France

Bernard Foing
European Space Agency (ESA), The Netherlands

Kevin Foley
The Boeing Company, USA

Elena Fomina
Institute of Biomedical Problems, Russian Academy of Sciences, Russian Federation

Nadeem Ghafoor
Canadensys, Canada

Peter Graef
German Aerospace Centre (DLR), Germany

Mariella Graziano
GMV Aerospace & Defence SAU, Spain

Bernhard Hufenbach
European Space Agency (ESA) and ISECG, The Netherlands

Candace Johnson
European Business Angels Network (EBAN), Belgium

Georgy Karabadzhak
Human Space Flight Program Center, The Central Research Institute of Machine Building (TSNIImash), Russian Federation

Kharun Karchaev
Lavochkin Association, Russian Federation

David Kendall
United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS), Canada

Masaru Koga
Japan Aerospace Exploration Agency (JAXA), Japan

Kathy Laurini
Osare Space, USA

Gilles Leclerc
Canadian Space Agency (CSA), Canada

Sandy Magnus
AstroPlanetview, Inc., USA

Viktoria Mayorova
Bauman Moscow State Technical University, Russian Federation

Fritz Merkle
OHB System AG-Bremen, Germany

Carlo Mirra
Airbus Defence and Space, Germany

Clay Mowry
Blue Origin, USA

Chiaki Mukai
Japan Space Exploration Agency (JAXA), Japan

Valanathan Munsami
South African National Space Agency (SANSA), South Africa

Oleg Igorevich Orlov
Institute of Biomedical Problems of the Russian Academy of Sciences, Russian Federation

David Parker
European Space Agency (ESA), France

Maria Antonietta Perino
Thales Alenia Space Italia, Italy

Nicolas Peter
European Space Agency (ESA), France

Anatoli Alekseevich Petrukovich
Space Research Institute Of Russian Academy of Science corresponding member of Russian Academy of Sciences, Russian Federation

Cheryl Reed
Northrop Grumman Innovation Systems, USA

Giuseppe Reibaldi
Moon Village Assocation (MVA), Austria

Igor Sorokin
S. P. Korolev Rocket and Space Corporation Energia, Russian Federation

Randy Sweet
Lockheed Martin Corporation, USA

Nikolay Testoyedov
ISS-Reshetnev Company, Doctor of Engeneering, Corresponding member of the Russian Academy of Sciences, Russian Federation

Stephan Ulamec
German Aerospace Center (DLR), Germany

Daniel Voigt
German Aerospace Centre (DLR), Germany

Chris Welch
International Space University (ISU), France

Dengyun Yu
China Aerospace Science and Technology Corporation (CASC), China

Lev Matveevich Zelenyi
Space Research Institute of Russian Academy of Sciences, Russian Federation

Hans Zeller
Arianespace, France

3 PRACTICAL INFORMATION

3.1 Conference Venue and Transportation

Tavrichesky Palace (St. Petersburg, Shpalernaya st., 47)

Tavrichesky or "Tauride" Palace is one of the largest and most historic palaces in Saint Petersburg.

Prince Grigory Potemkin of Tauride commissioned his favourite architect, Ivan Starov, to design his city residence in a rigorous Palladian style. Starov's design called for an extensive park and harbour in front of the palace, which would be linked with the Neva River by a canal. Building work began in 1783 and lasted for six years. Several months after Grigory Potemkin's death, Catherine II purchased his palace and ordered architect Fyodor Volkov to transform it into her summer townhouse.

In the 19th century, the palace was refurbished by Carlo Rossi and Vasily Stasov as a residence for minor royalty. It was then used to host balls and exhibitions until 1906, when it was transformed into the seat of the first Russian parliament, the Imperial State Duma.

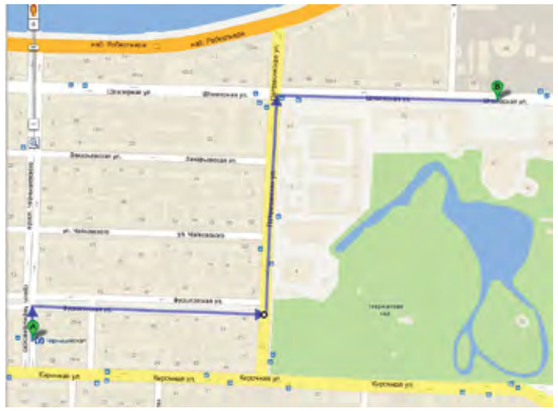
Immediately after the February Revolution of 1917, Tauride Palace housed the Russian Provisional Government and the Petrograd Soviet, in opposite wings of the palace (in early March the Provisional Government moved to the Marinsky Palace). The abortive Russian Constituent Assembly held its meetings there in 1918. In May 1918 Bolsheviks used the building to hold their 7th Congress, where they first named themselves the Russian Communist Party (Bolsheviks).

From 1920 to 1991, the Tauride Palace was used for the High Party School. Since the 1990s, Tauride Palace has been home to the Interparliamentary Assembly of Member Nations of the Commonwealth of Independent States (IPA CIS).

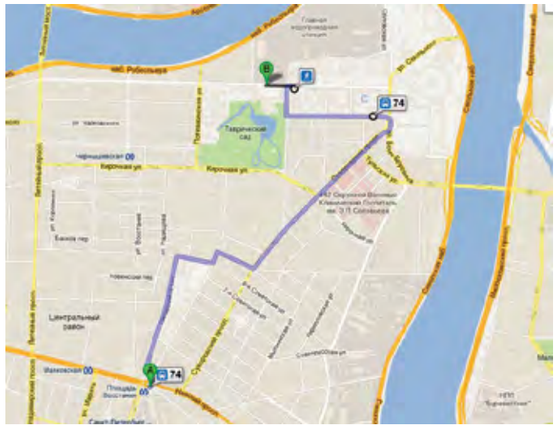
How to get to the TAVRICHESKY PALACE:

Tavrichesky Palace is located in the north-east of the historic centre, next to the Tavrichesky Garden (formerly the grounds of the palace).

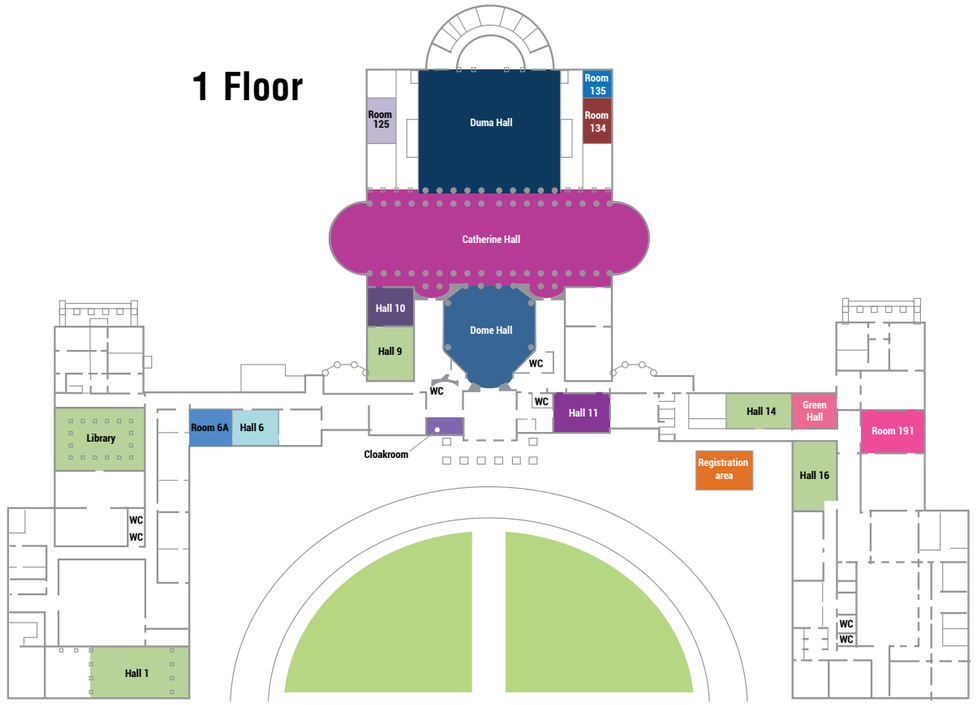
1. By feet from the closest metro station "Chernyshevskaya"

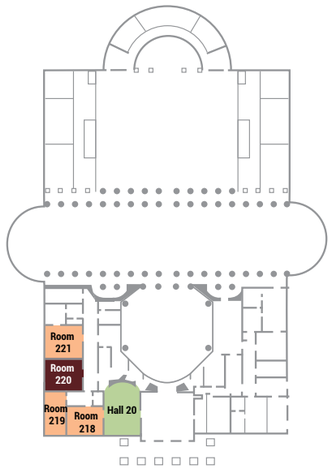


2. By buses No. 74 and No. 54 from the Moscow railway station (metro station "Ploschad Vosstaniya")



3.2 Floor Plans





Registration - Outside Tent
Plenaries, GNF, Opening & Closing Ceremony - Duma Hall
Technical Sessions - Hall 1, Library, Hall 9, Hall 14, Hall 16 & Hall 20
Exhibition - Dome Hall
IAF Secretariat - Hall 6
ROSCOSMOS Secretariat - Room 220
Press Conference Room - Hall 11
Virtual Technical Gallery & Catering - Catherine Hall

3.3 Opening Hours

Monday: 08:30 – 17:00
Tuesday: 07:30 – 20:30
Wednesday: 08:00 – 18:30
Thursday: 08:00 – 18:00

3.4 PCR Tests

PCR testing will be foreseen at the GLEX 2021 on June 14-17.
A nurse will provide the collection of biomaterial for the SARS-CoV-2 (COVID-19) for PCR testing at the medical office at the venue.

Test	Total price (in rubles)	Working hours	Test readiness
SARS-CoV-2 (COVID-19) EXTRA URGENT CITO coronavirus RNA	4170,00	09:00 - 12:00	until 18 o'clock of the same day
SARS-CoV-2 (COVID-19) EXTRA CITO coronavirus RNA	2920,00	09:00 - 12:00	until 10 o'clock the next day
RNA coronavirus a SARS-CoV-2 (COVID-19) CITO	2020,00	09:00 - 12:00	until 13 o'clock the next day

Payment is possible in cash and by card. The test results will be sent to the indicated email address. The translation of the test result into English is performed automatically and will be also sent to the indicated email address.

3.5 Live Streaming

The GLEX Opening and Closing Ceremonies, the Plenary Events, all IAF Global Networking Forum (GNF) Sessions and Press Conferences will be live-streamed on the IAF website: GLEX-Live-Streaming

In order to follow the stream, everyone is kindly invited to register here: https://glex-2021-online.iaf-registration.org/

In addition, do not forget to check-out the GLEX Virtual Technical Gallery and the online Proceedings of the GLEX 2021 here: https://dl.iafastro.directory/gallery/GLEX-2021/.

3.6 Useful information

Climate

The city's northern location, its proximity to the sea and its large water area do much to determine the specific climate of Saint Petersburg, with its short winter days, white nights in summer (from late May till mid-July), and frequent and dramatic weather changes. The climate is humid, almost maritime, with moderately warm summers and quite long winters. The average temperature in June is +17°C (+62.6°F).

Given the probable rapid weather changes in Saint Petersburg, it is advisable to prepare in advance for sudden changes in the temperature and the weather in general.

Official language:

The official language of the Russian Federation is Russian. English is widely spoken among young people.

Local time in Saint Petersburg: GMT+3 time zone.

Electricity:

The power supply voltage in Russia is 220V (50–60Hz). Type C and F sockets are common.

Telephones:

Saint Petersburg operators offer a variety of mobile telecommunications services in the GSM, UMTS and LTE standards. Guests to the city may acquire SIM cards of local mobile operators. All mobile operators provide mobile Internet services.

In accordance with the laws of the Russian Federation, a participant must be physically present and show a passport (passport of a citizen of the Russian Federation or a passport of a foreign citizen) in order to purchase a SIM card and sign a contract for the provision of mobile communication services.

Please note: before using the services of a foreign operator on the territory of Russia, it is advisable to find out more about the tariffs for roaming services.

Telephone code of Russia: +7 (or 8 for long-distance calls within Russia).

Telephone code of Saint Petersburg: 812

How to call to Saint Petersburg:

1. In Russia from a landline:

- enter the code (8 812)
- dial the 7-digit phone number

2. In Russia from a mobile phone:

- enter the code (+7 812)
- dial the 7-digit phone number

3. In other countries from a landline:

- enter the code (00 (country code) 7 812)
- dial the 7-digit phone number

4. In other countries from a mobile phone:

- enter the code (+7 812)
- dial the 7-digit phone number

How to call from Saint Petersburg:

1. To another country from a mobile phone:

- dial the code for an international line: (8 10), "+" or other
- dial the code of the country and city you are calling
- dial the subscriber's number

2. To another country from a landline:

- dial the code for an international line: (8 10)
- dial the code of the country and city (operator) you are calling
- dial the subscriber's number

Local currency and exchange rate:

The rouble is the official currency of the Russian Federation. For the latest exchange rates, please see the Central Bank of Russia website: www.cbr.ru.

All the main types of payment cards are accepted in Russia, including Visa, MasterCard, Mir, UnionPay, American Express, Diners Club, and Discover. Although payment cards are accepted in most restaurants and many stores in Saint Petersburg, participants are advised to have some cash at hand.

Exchanging currency:

Dollars and euros can be exchanged at almost any bank office or special exchange office (some open 24h) upon presentation of passport. Other currencies are normally only changeable at larger banks or central exchange offices. Commission is normally negligible.

Business hours:

Government offices and banks are open from 9 a.m. or 10 a.m. to 5 p.m. or 6 p.m. (with a one-hour lunch break at noon or at 1 p.m.) on weekdays, and are closed on weekends. Some banks are also open on Saturday. Different banks may have different office hours. Post offices are open from 8 a.m. to 8 p.m. from Monday to Saturday (with a one-hour lunch break at 1 p.m.) and closed on Sunday. Hospitals provide 24-hour emergency services. Most pharmacies open from 9 a.m. to 7 p.m. Some are open 24 hours a day. Most department stores are open from 9 a.m. to 10 p.m. Monday to Sunday.

Access & Safety

The IAF together with its partner the Russian State Space Corporation ROSCOSMOS have designed and announced GLEX 2021 as the first IAF in-person conference since the beginning of the COVID-19 pandemic. While we are planning to provide some limited hybrid elements at GLEX 2021 our main focus is to bring together in person space leaders, engineers and scientists from the worldwide space community. In order to allow for easy and unimpeded entry to Russia and access to the conference and to assure the safety of all our distinguished delegates we have agreed the following measures with the Russian authorities:

Entry into Russia: Entry into Russia is granted with a registered GLEX 2021 delegates Visa and a negative COVID-19 PCR test not older than 72 hours. No quarantine is required.

Access to the GLEX 2021 venue (Tavrichesky Palace): Access to the conference venue is granted only upon producing a negative PCR test not older than 72 hours when collecting the conference badge.

Health requirements and precautions: Foreign citizens travelling to the Russian Federation must submit a medical document (certificate) in Russian or in English showing a negative Covid-19 PCR test result obtained no earlier than three calendar days before arrival in the Russian Federation. The validity of the PCR test certificate is calculated starting from the date the biological material was collected. Passengers who cannot present a certificate will be not allowed to enter the Russian Federation. If it is not possible to submit the medical certificate in Russian or in English, it may be submitted in the official language of the country where the issuing organization is registered, accompanied by a Russian translation certified by a consular official of the Russian Federation.

Foreign citizens travelling by plane must also fill in the form provided by the flight attendants.

No vaccinations are required and no quarantine is foreseen to enter the Russian Federation.

Health safety measures at the venue: Continuous temperature screening at the entry to the venue, wearing masks at all time, hydroalcoholic sanitizers placed in all areas of the venue.

Support for returning home after GLEX 2021: PCR testing at the GLEX 2021 venue will be foreseen. For more info please see 3.4

Automated Teller Machines (ATMs):

Travellers who carry internationally recognized credit cards can get cash in the local currency at ATMs. The commission depends both on the ATM and the bank that issued the credit card.

Insurance:

Participants are advised to buy a voluntary medical insurance policy for foreigners, available by pre-order or for purchase upon arrival. Insurance of foreign citizens visiting Russia is a popular service offered by many insurance companies throughout the country.

Policies for foreign citizens may cover the following risks:

- medical expenses;
- luggage;
- accidents; and
- other risks upon request.

Tips and taxes:

In Russia, tipping is voluntary. In hotels, tips are appreciated for bellhops and cleaning services. Around $1-$3 USD per bag and $2-$4 USD per day for cleaning. At restaurants, tip between 10-15% depending on service.

Emergency phone numbers:

- Rescue service (for mobile network subscribers): 112

City emergency services:

- Rescue service: 101 (from a mobile phone), 01
- Police: 102 (from a mobile phone), 02
- Emergency medical service: 103 (from a mobile phone), 03
- Free enquiry service (around the clock): 064

3.7 Proceedings

The GLEX 2021 proceedings are available on a password protected site.

All registered participants will be provided after the conference with a link and online password to login and access the online proceedings which contain the full manuscript, video lectures and lightning talks from the conference Technical Programme.

If you do not receive the password, please contact: **support@iafastro.org**.

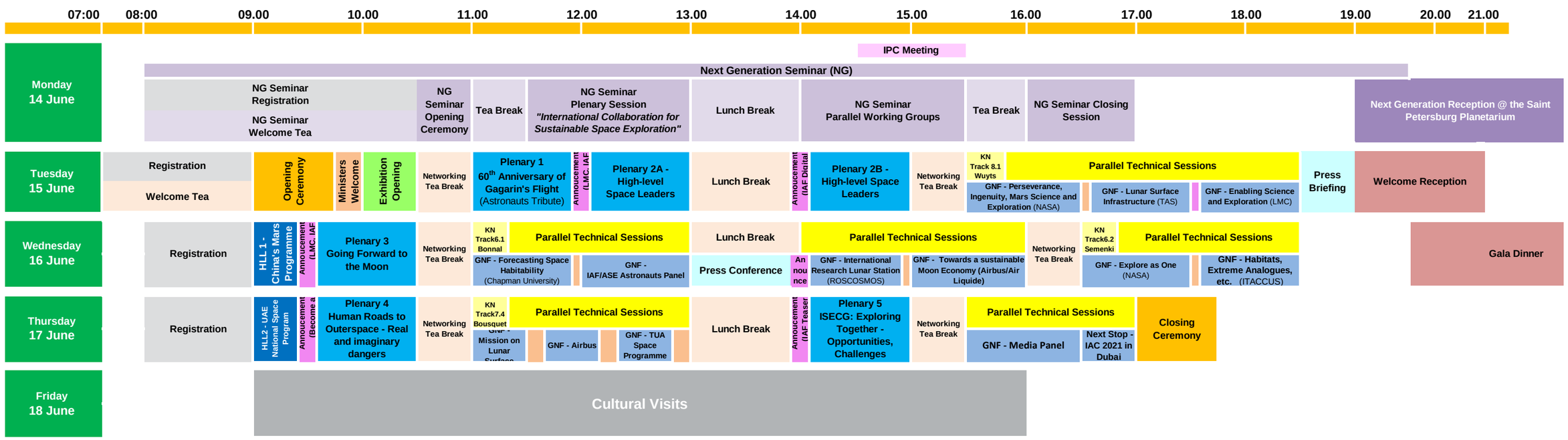
Papers will be indexed in the world's leading citation databases: Elsevier's SCOPUS and Compendex.

3.7 Virtual Conference Bag

Please view the Virtual Conference Bag at: http://goveb.co/pm/2d551d

4 CONFERENCE PROGRAMME

4.1 GLEX 2021 at a Glance



4.2 Technical Programme at a Glance

Date/schedule	Timing	Hall #1	Hall of Library	Hall #9	Hall #16	Hall #20	Hall #14
17.06.2021 PM	15:30 - 17:00	TS 2 PART 5 Lunar Exploration	TS 3 PART 4 Mars Exploration	TS 11 PART 3 Ground-Based Preparatory Activities	TS 7 PART 5 Key Technologies	TS 5 PART 2 Exploration of Other Destinations	TS 1 PART 4 International Cooperation for Space Exploration
17.06.2021 AM	11:00 - 13:00	TS 2 PART 4 Lunar Exploration	TS 10 PART 2 Space Resources	TS 8 PART 3 Challenges of Life Support/Medical Support	TS 12 PART 3 Transcending Societal Issues for Space Exploration	TS 7 PART 4 Key Technologies	TS 5 PART 1 Exploration of Other Destinations
16.06.2021 PM (2nd)	16:30 - 18:30	TS 2 PART 3 Lunar Exploration	TS 10 PART 1 Space Resources	TS 6 PART 2 Space Transportation	TS 4 PART 1 Exploration of Near-Earth Asteroids	TS 7 PART 3 Key Technologies	TS 3 PART 3 Mars Exploration
16.06.2021 PM (1st)	14:00 - 16:00	TS 3 PART 2 Mars Exploration	TS 1 PART 3 International Cooperation for Space Exploration	TS 8 PART 2 Challenges of Life Support/Medical Support	TS 12 PART 2 Transcending Societal Issues for Space Exploration	TS 2 PART 2 Lunar Exploration	TS 11 PART 2 Ground-Based Preparatory Activities
16.06.2021 AM	11:00 - 13:00	TS 3 PART 1 Mars Exploration	TS 1 PART 2 International Cooperation for Space Exploration	TS 6 PART 1 Space Transportation	TS 4 PART 2 Exploration of Near-Earth Asteroids	TS 7 PART 2 Key Technologies	TS 9 Space Stations
15.06.2021 PM	15:30 - 18:30	TS 2 PART 1 Lunar Exploration	TS 1 PART 1 International Cooperation for Space Exploration	TS 8 PART 1 Challenges of Life Support/Medical Support	TS 12 PART 1 Transcending Societal Issues for Space Exploration	TS 7 PART 1 Key Technologies	TS 11 PART 1 Ground-Based Preparatory Activities

4.3 Day-by-day

All timings are in GMT+3 Moscow time (MSK). For the latest up to date programme please consult the IAF website: https://www.iafastro.org/events/global-series-conferences/glex-2021/plenary-programme/

Monday 14 June

Next Generation Day

10:30 - 11:00 Opening Ceremony

Location: Duma Hall

Speakers:

Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

Sergey SAVELIEV
Deputy Director General for International Cooperation,
ROSCOSMOS,
VP for Relations with International Organizations, International Astronautical Federation (IAF),
Russian Federation

Bogdan ZASTAVNY
Chairman,
St. Petersburg Committee on Youth Policy and Cooperation,
Russian Federation

MODERATOR
Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

11:30 - 13:00 Plenary Session - International Collaboration for Sustainable Space Exploration

Location: Duma Hall

The activities of the GLEX2021 Next Generation Day will begin with a high-level panel discussion on the role of the young generations and international cooperation for sustainable space exploration. Questions from the audience are welcomed and will be discussed during the panel through the use of interactive tool Slido.

Speakers:

Hazzaa ALMANSOORI
Astronaut,
United Arab Emirates

Simonetta DI PIPPO
Director,
United Nations Office for Outer Space Affairs (UNOOSA),
Austria

Sergey KRIKALEV
Special Advisor to the Director General,
ROSCOSMOS,
Russian Federation

Priyanka DAS
PhD Student,
Institut Supérieur de l'Aéronautique et de l'Espace (ISAE),
France

Julie PATARIN-JOSSEC
Lecturer/Associate Fellow,
Saint Petersburg State University; Associate Fellow at the Centre Emile Durkheim for Comparative Sociology and Political Science,
France

Ignaty ROMANOV-CHERNIGOVSKY
Software Engineer,
Space Products and Innovation,
Germany

MODERATOR
Antonino SALMERI
Lead of the E.A.G.L.E. Team on Lunar Governance,
Space Generation Advisory Council (SGAC),
Austria

14:00 - 15:30 Working Groups

Following the inputs provided during the plenary session, participants of the Next Generation Day will divide in 6 working groups to further explore and reflect on the challenges and opportunities related to the role of the young generations for sustainable space exploration. Each working group will feature 4 or 5 co-chairs equally representing established as well as young space professionals, and will present its conclusions at the closing ceremony.

Mars Working Group

- **Ghanim Alotaibi**, *Senior Mechanical Engineer*, Moon Village Association (MVA)
- **Alice Barthe**, *Crew Data scientist*, Womars
- A**leksandra Miroslavova Marinova**, *Director*, First Steps Legal
- **Mike Baker**, *Astronaut*, Association of Space Explorers
- **Alexander Alexandrov**, *Astronaut*, Association of Space Explorers

Saturn Working Group

- **Irina Chernykh**, *Senior Lecturer*, RUDN University
- **Camilo Reyes,** *Student*, University of Wuerzburg
- **Hazzaa Almansoori**, *Astronaut*, Association of Space Explorers

Jupiter Working Group

- **Hamza Abdul Hameed**, *Legal Consultant*, UNIDROIT
- **Ignaty Romanov-Chernigovsky**, *Software Engineer*, Space Products and Innovation
- **Julie Patarin-Jossec**, *Lecturer/Associate Fellow*, Russian Academy of Sciences
- **Franz Viehbock**, *Astronaut*, Association of Space Explorers
- **Jean-Loup Chretien**, *Astronaut*, Association of Space Explorers

Mercury Working Group

- **Vladislav Zubko**, *Senior Laboratory Assistant*, Space Research Institute (IKI), Russian Academy of Sciences (RAS)
- **Priyanka Das**, *PhD Student*, Institut Supérieur de l'Aéronautique et de l'Espace (ISAE)
- **Reinhold Ewald**, *Astronaut*, Association of Space Explorers
- **Sergei Krikalev**, *Astronaut*, Association of Space Explorers
- **Anatoly Artsebarsky**, *Astronaut,* Association of Space Explorers

Neptune Working Group

- **Sara Toffoletti**, *Student*, Paris-Saclay University
- **Andrey Belyaev**, *Senior Assistant*, Space Research Institute of the Russian Academy of Sciences (IKI)
- **Pavel Vinogradov**, *Astronaut*, Association of Space Explorers
- **Ulf Merbold**, *Astronaut*, Association of Space Explorers
- **Julie Payette,** *Astronaut*, Association of Space Explorers

Venus Working Group

- **Jan Van Baelen,** *YGT for Research, Technology and Innovation Management*, European Space Agency (ESA)
- **Miraslava Kazlouskaya**, LL.M. in Air and Space Law Candidate, Leiden University, International Institute of Air and Space Law
- **Dorin Prunariu**, *Astronaut*, Association of Space Explorers

16:00 - 17:00 Closing Session

Location: Duma Hall

The activities of the GLEX2021 Next Generation Day will be concluded by a high-level panel discussion wrapping up the main outcomes from the plenary and working group sessions. This panel will feature one co-chair per working group presenting the conclusions of its group and a final round of comments under the moderation of Antonino Salmeri from the Space Generation Advisory Council.

Speakers:

Co-Chair of each Working Group

Closing Remarks:

Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

MODERATOR
Antonino SALMERI
Lead of the E.A.G.L.E. Team on Lunar Governance,
Space Generation Advisory Council (SGAC),
Austria

19:00-22:30 Next Generation Reception

Location: Planetarium

Address:
74C Obvodny Canal
Saint Petersburg, 190013, Russian Federation

Speakers:

Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

Simonetta DI PIPPO
Director,
United Nations Office for Outer Space Affairs (UNOOSA),
Austria

Sergey KRIKALEV
Special Advisor to the Director General,
ROSCOSMOS,
Russian Federation

Antonino SALMERI
Lead of the E.A.G.L.E. Team on Lunar Governance,
Space Generation Advisory Council (SGAC),
Austria

Tuesday 15 June

09:00-09:45 Opening Ceremony

Location: Duma Hall

The GLEX 2021 Opening Ceremony will feature several welcome messages from Russian Federation's officials, as well as IAF and ROSCOSMOS leadership. The ceremony will also include several videos and a musical act.

Speakers:

Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

Dmitry ROGOZIN
Director General,
State Space Corporation ROSCOSMOS,
Russian Federation

Alexander BEGLOV
Governor of Saint Petersburg,
Russian Federation

Ivan ABRAMOV
Deputy Chairman,
Federation Council of the Federal Assembly,
Russian Federation

Denis KRAVCHENKO
Deputy of the State Duma of the Federal Assembly,
Russian Federation

MODERATOR
Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

09:45-10:00 Ministers' Welcome

Location: Duma Hall

Following the official Opening Ceremony, GLEX delegates will have the pleasure to hear brief welcome messages from several international Ministers present at the Conference.

Speakers:

Rashad NABIYEV
Minister of Transport, Communications and High Technology,
Republic of Azerbaijan,
Azerbaijan

Hayk CHOBANYAN
Minister of High-Tech Industry,
Republic of Armenia,
Armenia

Pedro DUQUE (recorded message)
Astronaut and Minister for Science and Innovation,
Government of Spain,
Spain

Nenad POPOVIĆ
Minister for Innovation and Technological Development,
Republic of Serbia

MODERATOR
Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

10:00-10:30 Exhibition Opening

Location: Dome Hall

11:00-11:55 Plenary 1 – 60th Anniversary Yuri Gagarin's Spaceflight

Location: Duma Hall

In 2021 the entire global community will celebrate the 60th anniversary of Yuri Gagarin's first spaceflight, a truly significant event with which the era of practical space exploration began and forever changed the world. GLEX 2021 will feature a special Plenary dedicated to the 60th anniversary of Yuri Gagarin's spaceflight. More than 15 international astronauts and cosmonauts are invited to this highlight event and will give their tribute to the first man in space and the beginning of humankind's spaceflight era.

Speakers:

Alexander ALEXANDROV
Cosmonaut and General Director's Council,
S.P. Korolev Rocket and Space Corporation Energia,
Russian Federation

Hazzaa ALMANSOORI
Astronaut,
United Arab Emirates

Mike BAKER
Astronaut and Advisor,
Rhodium Scientific,
United States

Jean-Loup CHRETIEN
Astronaut and CEO,
Tietronix Europe,
France

Jean-François CLERVOY
Astronaut and Founder,
AirZeroG,
France

Reinhold EWALD
Astronaut and Professor of Astronautics,
University of Stuttgart,
Germany

Anatoly ARTSEBARSKY
Cosmonaut,
Russian Federation,

Claudie HAIGNERÉ
Astronaut and Director General,
JPCH Espaces,
France

Jean-Pierre HAIGNERÉ
Astronaut and President,
JPCH Espaces,
France

Sergey KRIKALEV
Special Advisor to the Director General,
ROSCOSMOS,
Russian Federation

Oleg KOTOV
Cosmonaut and Deputy Director for Science,
Institute for Biomedical Problems of the Russian Academy of Sciences (IBMP RAS),
Russian Federation

Ulf MERBOLD
Astronaut,
Germany

Julie PAYETTE
Astronaut and Former Governor General,
Canada

Dumitru-Dorin PRUNARIU
Astronaut and Expert, Romanian Association for Space Technology and Industry,
ROMSPACE,
Member,
Board of the Romanian Space Agency,
Romania

Sergey REVIN
Cosmonaut,
Russian Federation

Aleksandr SKVORTSOV
Cosmonaut,
Russian Federation

Pavel VINOGRADOV
Cosmonaut and Deputy Head of Aircraft and Space Flight Center,
S.P. Korolev Rocket and Space Corporation Energia,
Russian Federation

MODERATOR
Franz VIEHBOCK
Astronaut and CEO,
Berndorf AG,
Austria

12:00-13:00 Plenary 2A – High-Level Space Leaders

Location: Duma Hall

The IAF is organizing, also at GLEX, its flagship plenary session with the leaders of worldwide space agencies and major institutions. Participating space leaders will present and discuss their respective agencies space programmes, with a focus on current and future space explorations plans. The event will be divided into 2 main sections. In the first part, the space leaders will give a short introduction and the moderator will follow-up with a series of questions; the audience will also have the opportunity to ask questions through the IAF app.

Speakers:

Simonetta DI PIPPO
Director,
United Nations Office for Outer Space Affairs (UNOOSA),
Austria

Dmitry ROGOZIN
Director General,
ROSCOSMOS,
Russian Federation

K. SIVAN (remotely)
Chairman,
Indian Space Research Organisation (ISRO),
India

Hiroshi YAMAKAWA (remotely)
President,
Japan Aerospace Exploration Agency (JAXA),
Japan

Grzegorz WROCHNA
President,
Polish Space Agency (POLSA),
Poland

YANHUA WU (remotely)
Vice Administrator,
China National Space Administration (CNSA),
China

MODERATOR
Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

14:00-15:00 Plenary 2B – High-Level Space Leaders

Location: Duma Hall

The IAF is organizing, also at GLEX, its flagship plenary session with the leaders of worldwide space agencies and major institutions. Participating space leaders will present and discuss their respective agencies space programmes, with a focus on current and future space explorations plans. The event will be divided into 2 main sections. In the first part, the space leaders will give a short introduction and the moderator will follow-up with a series of questions; the audience will also have the opportunity to ask questions through the IAF app.

Speakers:

Salem AL MARRI
Assistant Director General for Science and Technology/ Astronaut Program Manager,
Mohammed Bin Rashid Space Centre (MBRSC),
United Arab Emirates

Josef ASCHBACHER (remotely)
Director General,
European Space Agency (ESA),
France

Lisa CAMPBELL (remotely)
President,
Canadian Space Agency (CSA),
Canada

Christian HAUGLIE-HANSSEN
Director General,
Norwegian Space Agency,
Norway

Bill NELSON (remotely)
Administrator,
National Aeronautics and Space Administration (NASA),
United States

Dmitry ROGOZIN
Director General,
ROSCOSMOS,
Russian Federation

Giorgio SACCOCCIA (remotely)
President,
Italian Space Agency (ASI),
Italy

Serdar Hüseyin YILDIRIM
President,
Turkish Space Agency (TUA),
Turkey

MODERATOR
Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

15:30-16:30 IAF GNF – Perseverance, Ingenuity, and the Future of Mars Science and Exploration

Location: Duma Hall

The panel will discuss Perseverance's science and technology milestones to date and upcoming science plans as well as explore how this mission feeds into future Mars missions including Mars Sample Return and human exploration.

Organized by:

Speakers:

Lori GLAZE (remotely)
Director of Science Mission Directorate's Planetary Science Division,
National Aeronautics and Space Administration (NASA),
United States

Veronica PEINADO GONZALEZ (remotely)
Telecommunication Engineer,
University of Alcala,
Spain

Sandra SILJESTRÖM (remotely)
Research Scientist,
RISE Research Institutes of Sweden,
Sweden

Matt WALLACE (remotely)
Mars 2020 Perseverance Project Manager,
NASA Jet Propulsion Lab,
United States

Ken WILLIFORD (remotely)
Deputy Project Scientist for the NASA Mars 2020 rover mission and Director of the Astrobiogeochemistry Laboratory (abcLAB),
NASA Jet Propulsion Lab,
United States

MODERATOR
Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

15:30-18:30 Technical Sessions

TS

No.	Title	Room
1.1	International Cooperation for Space Exploration (1)	Hall of Library
11.1	Ground-Based Preparatory Activities (1)	Hall #14
12.1	Transcending Societal Issues for Space Exploration (1)	Hall #16
2.1	Lunar Exploration (1)	Hall #1
7.1	Key Technologies (1)	Hall #20
8.1	Challenges of Life Support/Medical Support for Human Missions (1)	Hall #9

16:35-17:30 IAF GNF – Lunar Surface Infrastructure

Location: Duma Hall

The major spacefaring nations are embarked in a coordinated international effort to sustain space exploration beginning at the International Space Station and moving to lunar orbit and lunar surface and then Mars.

The international Lunar Gateway, a human-tended facility in orbit around the Moon, is the next step beyond LEO in the global journey to Mars.

A Moon surface infrastructure will complement the opportunities that the Lunar Gateway offers to develop a sustainable human space exploration. It will allow to validate capabilities and enabling technologies for Mars (landers, rovers, protections from the cosmic radiations…) and will offer in-situ resources.

The panelists will discuss the main elements required to initiate the Moon surface infrastructure and will present the current plans at international level to contribute to its open architecture.

Organized by:

Speakers:

John CONNOLLY (remotely)
Human Landing Systems Programme,
National Aeronautics and Space Administration (NASA),
United States

Matt DUGGAN
Mission Management & Operations Manager,
The Boeing Company,
United States

Barbara IMHOF (remotely)
Co-Founder & Co-CEO,
LIQUIFER Systems Group (LSG),
Austria

René PISCHEL
Head of the ESA Permanent Mission in the Russian Federation,
European Space Agency (ESA),
Russian Federation

Roberto PROVERA
Director New Initiatives & Customer Solutions Development,
Thales Alenia Space Italia,
Italy

Steve SQUYRES (remotely)
Chief Scientist,
Blue Origin,
United States

MODERATOR
Maria Antonietta PERINO (remotely)
Director for Space Economy Exploration and International Network,
Thales Alenia Space Italia,
Italy

MODERATOR
Eleonora ZEMINIANI
Human Exploration New Initiatives,
Thales Alenia Space Italia,
Italy

17:35-18:30 IAF GNF – Enabling Science and Exploration: Extending Human Presence from Earth to The Moon and Beyond

Location: Duma Hall

Humanity's quest to extend human space exploration beyond Earth to the Moon and on to Mars is guided by a global approach to cooperation. Humankind, including NASA and its international partners, will reach the lunar surface together through the Artemis Program. Through collaboration, we expand our understanding of the Moon and early solar system, learn to live and explore on other worlds, and observe the universe beyond from the unique vantage point of the Moon.

This discussion will provide an update from the industry perspective on Orion and the Artemis architecture, along with the lunar surface capabilities that will enable us to conduct crucial scientific investigations and extend human presence beyond our home planet.

Organized by:

Speakers:

Lisa MAY (remotely)
Chief Technologist for Commercial and Civil Space Advanced Programs,
Lockheed Martin Corporation,
United States

Kerry TIMMONS (remotely)
Systems Engineering Design & Integration Senior Manager for the Orion Program,
Lockheed Martin Corporation,
United States

MODERATOR
Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

18:30 - 19:00 Press Briefing

Location: Duma Hall

The Russian Federation's representatives, as well as IAF and ROSCOSMOS leadership will attend the press conference to give the audience the opportunity to hear firsthand all the most important and timely questions asked by journalists.

Speakers:

Ivan ABRAMOV
Deputy Chairman,
Federation Council of the Federal Assembly,
Russian Federation

Dmitry ROGOZIN
Director General,
ROSCOSMOS,
Russian Federation

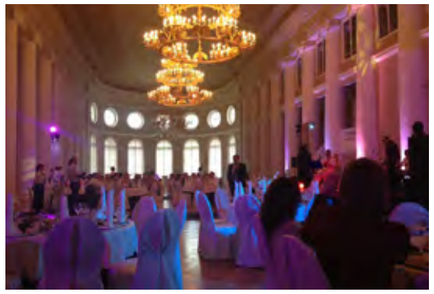
Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

MODERATOR
Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

18:30-20:30 Welcome Reception

Location: Catherine Hall

Enjoy a nice evening of networking, with a delicious cocktail and a stunning and surprising entertainment!



Wednesday 16 June

09:00-09:25 Highlight Lecture 1 – Space Transportation System of Human Mars Exploration

HLL

Location: Duma Hall

Space Transportation System of Human Mars Exploration Human Mars exploration (HME) is of great significance in exploring extraterrestrial life, interstellar migration, promoting Sci&Tech development and the progress of human society. This report first introduces the mission profile, overall scheme, relevant data and video of China's first Mars exploration mission Tianwen-1 including the Zhurong rover, and China's future deep space exploration plans, then briefly reviews the development of global Mars exploration, and analyzes the design factors of HME mission architecture. It follows that a HME roadmap in the future is proposed with corresponding mission architectures. Also, based on the analysis of composition and characteristics, the overall scheme and design parameters of a HME space transportation system is presented, based on which the related key technologies are given as well. At last, the report draws several conclusions and suggestions, providing references for further global studies on HME and its space transportation system.

Organized by:

Speaker:

Xiaojun WANG (remotely)
President,
China Academy of Launch Vehicle Technology (CALT),
China

MODERATOR
Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

09:30-10:30 Plenary 3 – Going Forward to the Moon - New Roads to Lunar Exploration

PE

Location: Duma Hall

The 2019 marked the commitment to go back to the Moon in this decade as a major milestone in Exploration. It will not be the first time humans are on the Moon, but it will still be the decade where humanity pioneers and innovates in many exploration areas on the road to Lunar Exploration. The way forward to the Moon is now at the forefront of how space exploration will be understood in the space business. New business models, new technologies, new partnerships... even though space agencies still remain the main developers of these lunar missions, they will gradually become more and more the anchor customers for commercial missions. This panel will offer an overview of different lunar exploration programmes that have appeared around the world, mostly commercial. The panel will highlight the different needs, approaches, challenges and needed solutions from the commercial providers. At the same time, it will help us understand the importance of the space agencies as main customers to them and how the customer relationships are built. It will also give a good overview of the new approaches, covering from the governmental to commercial new policies and actions, discussing over the new business models, new technologies and new partnerships.

Speakers:

Kyle ACIERNO
CEO,
ispace technologies U.S,
United States

Salem AL MARRI
Assistant Director General for Science and Technology/ Astronaut Program Manager,
Mohammed Bin Rashid Space Centre (MBRSC),
United Arab Emirates

Lutz BERTLING (remotely)
Member of the Executive Board, OHB SE, Chief Strategy and Development Officer & Chief Digital Officer OHB Group,
OHB System AG-Munich,
Germany

Vincenzo GIORGIO
President, Institutional Marketing & Sales,
Thales Alenia Space,
CEO,
ALTEC S.p.A.,
Italy

Sergey KRIKALEV
Special Advisor to the Director General,
ROSCOSMOS,
Russian Federation

Andreas LINDENTHAL
Head of Business Operations Space Systems, Head of Spacecraft Equipment, Head of Space Systems Germany,
Airbus Defence and Space GmbH,
Germany

MODERATOR
Alain BORIES
Senior Vice President Business Development and Political Affairs,
OHB System AG-Munich,
Germany

11:00-11:55 IAF GNF – Forecasting Future Space Habitability: Lessons Learned from Twenty Years of ISS Permanent Occupation

Location: Duma Hall

While 2020 was the twentieth anniversary of permanent occupation of the International Space Station, 2021 marks two other milestones in human spaceflight with the sixtieth anniversary of Yuri Gagarin's flight and the fortieth anniversary of the first Space Shuttle flight. These events challenge us to go beyond celebration and collective memorialization to discuss and analyze how the experience of designing and operating crewed missions in Low Earth Orbit can help us improve future long-duration spaceflights in and beyond LEO.

Taking into account the fact that future orbital and interplanetary missions might involve a wider range of activities such as space tourism, and a wider range of astronaut profiles, including people not necessarily trained as highly qualified systems operators, habitability will become a more critical criterion in the design of future spaceship, both from a safety and comfort perspective. Work and life accommodations in space have continuously improved over the past 60 years, thanks to regular post-flight debriefings and many advanced studies. However, these arrangements remain oriented towards operational missions performed by carefully selected and highly trained professional astronauts.

As we conceptualize future space missions of different types, involving scientists performing their own experiments in situ, movie directors filming in space, or tourists who willing to experience life in outer space, space habitats need to be increasingly thought as a place to live – and not just as a place to work that offers the barest comforts. The type of work realised in outer space might also differ from simply operating complex machines with the support of a ground control center, which requires a rethinking of orbital workplaces for new kinds of missions.

In this GNF session, we gather a panel of experts from diverse technical, operational, and social science backgrounds in order to confront their perspectives on how the lessons learned from the ISS programme can be exploited and prioritized in the design of future orbiting (and possibly also interplanetary) habitats. We will define some questions in advance, addressing topics such as architecture, living conditions (the ability to look outside the habitat, sleeping, personal hygiene, meals, physical exercise, stowage management, connectivity, cabin layout, leisure, sensory aspects, etc.), social wellbeing, work conditions, required level of training in order to use the habitat, systems compatibility, and more.
The session will be structured in two parts: the first part (45 minutes) will have each expert give their own view on some of the key questions above and possibly a debate among them. The second part proposes a dialogue with the audience through a Q&A session (15 minutes).

Organized by: **Chapman University**

Speakers:

Andrea BOYD (remotely)
Deputy Lead of Astronaut Operations and EUROCOM,
Stationed at the European Astronaut Centre,
Germany

Octave DE GAULLE
Director,
Spade Agency,
France

Sandra HÄUPLIK-MEUSBURGER (remotely)
Senior lecturer,
TU Wien, Institute for Architecture and Design,
Academic Course Director,
Course Space, Science Academy Lower Austria,
Director,
Space-craft Architektur,
Austria

Sergey KRIKALEV
Special Advisor to the Director General,
ROSCOSMOS,
Russian Federation

Julie PATARIN-JOSSEC
Lecturer,
Saint Petersburg State University;
Associate Fellow at the Centre Emile Durkheim for Comparative Sociology and Political Science,
France

Ashley SHEW (remotely)
Associate Professor of Science, Technology, and Society,
Virginia Polytechnic Institute and State University,
United States

MODERATOR
Jean-François Clervoy
Astronaut and Founder,
AirZeroG,
France

MODERATOR
Justin ST. P. WALSH
Associate Professor of Art History and Archaeology,
Chapman University,
United States

11:00-13:00 Technical Sessions

No.	Title	Room
1.2	International Cooperation for Space Exploration (2)	Hall of Library
3.1	Mars Exploration (1)	Hall #1
4.2	Exploration of Near-Earth Asteroids (2)	Hall #16
6.1	Space Transportation (1)	Hall #9
7.2	Key Technologies (2)	Hall #20
9.1	Space Stations	Hall #14

12:00-13:00 IAF GNF – IAF-ASE Astronauts Panel

Location: Duma Hall

The IAF-ASE Astronauts GNF will feature an international panel of astronauts and cosmonauts who will share their perspectives on human space activities and space travel.

Organized by:

Speakers:

Hazzaa ALMANSOORI
Astronaut,
United Arab Emirates

Mike BAKER
Astronaut and Advisor,
Rhodium Scientific,
United States

Jean-François CLERVOY
Astronaut and Founder,
AirZeroG,
France

Claudie HAIGNERÉ
Astronaut and Director General,
JPCH Espaces,
France

Sergey KRIKALEV
Special Advisor to the Director General,
ROSCOSMOS,
Russian Federation

Ulf MERBOLD
Astronaut,
Germany

Julie PAYETTE
Astronaut and Former Governor General,
Canada

Franz VIEHBOCK
Astronaut and CEO,
Berndorf AG,
Austria

MODERATOR
Reinhold EWALD
Astronaut and Professor of Astronautics,
University of Stuttgart,
Germany

MODERATOR
Oleg KOTOV
Cosmonaut and Deputy Director for Science,
Institute for Biomedical Problems of the Russian Academy of Sciences (IBMP RAS),
Russian Federation

14:00-14:55 IAF GNF – Road Map for Creation of The International Research Lunar Station

Location: Duma Hall

This GNF Sessions is a joint event of the State Space Corporation ROSCOSMOS and the China National Space Administration (CNSA). The session is dedicated to the presentation of the Roadmap for the construction of the International Lunar Research Station, including familiarization with the preliminary aspect of the project, the main stages of its implementation, as well as the procedure of participation of international partners.

Organized by:

Speakers:

Kirill BORISOV
Director of the Department for Automated Space Systems,
ROSCOSMOS,
Russian Federation

Sergey SAVELIEV
Deputy Director General for International Cooperation,
ROSCOSMOS,
Russian Federation

Yanhua WU (remotely)
Vice Administrator,
China National Space Administration (CNSA),
China

MODERATOR
Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

14:00-16:00 Technical Sessions

No.	Title	Room
1.3	International Cooperation for Space Exploration (3)	Hall of Library
11.2	Ground-Based Preparatory Activities (2)	Hall #14
12.2	Transcending Societal Issues for Space Exploration (2)	Hall #16
2.2	Lunar Exploration (2)	Hall #20
3.2	Mars Exploration (2)	Hall #1
8.2	Challenges of Life Support/Medical Support for Human Missions (2)	Hall #9

15:00-16:00 IAF GNF – Towards a Sustainable Moon Economy – Vision of Agencies & Industries

Location: Duma Hall

How agencies and industries are collaborating together to build a Moon Economy. Indeed, only the development of a cis-lunar economy based on the Moon resources will achieve a sustainable human return and a successful presence on the Moon. Today, the industry is organizing itself toward this objective, involving not only space companies, but also nontraditional space actors. This panel proposes to highlight the vision of key space agencies in the Moon Exploration and the initiatives taken by industries to lead the development of a lunar ecosystem: with one common objective, the development of a Moon Economy."

Organized by:

Speakers:

Bertrand BARATTE
Director of Space Market,
Air Liquide,
France

Joerg KREISEL
CEO,
JKIC,
Germany

Sergey KRIKALEV
Special Advisor to the Director General,
ROSCOSMOS,
Russian Federation

Bob LAMBORAY
Policy Officer,
Luxembourg Space Agency,
Luxembourg

Luigi SCATTEIA
Space Practice Leader,
PwC Advisory,
France

MODERATOR
Pierre-Alexis JOUMEL
Director International & New Business, Space Systems,
Airbus Defence and Space GmbH),
Germany

16:30-17:30 IAF GNF – Explore As One

Location: Duma Hall

Explore as one NASA – a dynamic dialogue with the Associate Administrators for NASA's Science, Space Technology, and Human Exploration and Operations Mission Directorates on how NASA engages across the enterprise and with our partners around the world. Their conversation will build on our ability to work together in LEO and on the International Space Station, moving forward into future plans for Artemis and science and technology development for exploration at the Moon and Mars, demonstrating how successful exploration is a cooperative effort.

Organized by:

Speakers:

Kathryn L. LUEDERS (remotely)
Associate Administrator of the Human Exploration and Operations (HEO) Mission Directorate,
National Aeronautics and Space Administration (NASA),
United States

James L. REUTER (remotely)
Associate Administrator for the Space Technology Mission Directorate (STMD),
National Aeronautics and Space Administration (NASA),
United States

Thomas ZURBUCHEN (remotely)
Associate Administrator for the Science Mission Directorate,
National Aeronautics and Space Administration (NASA),
United States

MODERATOR
Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

16:30-18:30 Technical Sessions

No.	Title	Room
10.1	Space Resources (1)	Hall of Library
2.3	Lunar Exploration (3)	Hall #1
3.3	Mars Exploration (3)	Hall #14
4.1	Exploration of Near-Earth Asteroids (1)	Hall #16
6.2	Space Transportation (2)	Hall #9
7.3	Key Technologies (3)	Hall #20

17:35-18:30 IAF GNF – Habitats, Extreme Analogues, Research, Training, Culture and Arts for Space Exploration (Heart-Case)

Location: Duma Hall

The GLEX GNF Panel will address various aspects of habitats, exploration, astronautics, society and settlements: Science, Technology, Missions, Moon-Mars Synergy, astronauts and Moonbases, Sociocultural, Economy, MoonVillage, Young Lunar & Galilean Explorers, training and capacity building, ArtMoonMars.

The EuroMoonMars initiative with exploration partners,conducted field campaigns in Moon-Mars analogue environments. The field campaigns have been organised in specific locations of technical, scientific and exploration interest, at Utah MDRS with ILEWG, ESA ESTEC, NASA Ames, VU Amsterdam. Yearly EuroMoonMars field campaigns were conducted in extreme sites and habitats. The campaigns consist of research activities for data analysis, instruments tests and development, field tests in Moon-Mars analogues, pilot projects, training and hands-on workshops and outreach activities.

The International Moonbase Alliance (IMA) and Hawaii Space Exploration Analog and Simulation (HI-SEAS) joined on a series of EuroMoonMars, IMA and HI-SEAS (EMMIHS) campaigns, at the HI-SEAS analogue facilities in Hawaii. As of 2018, IMA, an organization dedicated to building sustainable settlements on the Moon, has been organising regular simulated missions to the Moon and Mars at HI-SEAS. Some EuroMoonMars campaigns were conducted in an isolated MoonMars habitat in Poland at AATC Analog Astronaut Training Center , and in Iceland towards the deployment of a lavatube subsurface habitat. A number of extreme analogue Habitats concepts have been studied, developed and tested, feeding forward the design and development of future MoonMars Habitats. We shall describe the status of projects, and of analogue astronaut simulations.

Members of IAF ITACCUS, Exploration and Space Habitats committee,have joined, enhancing technical and socio-cultural issues of MoonMars settlements. The ArtMoonMars programme of cultural and artistic activities was started by ILEWG in collaboration with ESA and partner institutions, for events, workshops and artist residencies. Artists demos with scientists and engineers, including visual, electronic, VR artefacts and art performances. One ArtMoonMars pilot project is Moongallery.eu, an international collaborative artwork towardsf 100 artefacts to the Moon. Moon Gallery aims to set up the first permanent museum on the Moon.

Organized by:

Speaker:

Jean-François CLERVOY
Astronaut and Founder,
AirZeroG,
France

Agata KOŁODZIEJCZYK (remotely)
Director of Scientific Projects,
Analog Astronaut Training Center,
The Netherlands

Oleg ORLOV
Director,
Institute for Biomedical Problems of the Russian Academy of Sciences (IBMP RAS),
Russian Federation

Ioana Roxana PERRIER
Professor Space, Science and Physics,
IPSA (Institut polytechnique des sciences avancées)
Air and Space Engineering School,
France

Henk ROGERS (remotely)
CEO,
Blue Planet Foundation,
Chair PISCES & HI-SEAS,
Founder International Moonbase Alliance,
United States

Anna SITNIKOVA
Curator, Manager and the Deputy-Chair,
Moon Gallery Foundation,
The Netherlands

MODERATOR
Bernard FOING
Executive Director,
International Lunar Exploration Working Group (ILEWG), EuroMoonMars,
Chair IAF ITACCUS Committee,
The Netherlands

19:30-00:00 Gala Dinner

Location: The “Summer Palace” Restaurant

Transfer will be provided from Conference venue to the Gala Dinner.

19:30 – 20:30 Welcome Cocktail
20:30 – 00:00 Gala Dinner offered by Saint Petersburg

Address:
Restaurant “Summer Palace”
Saint Petersburg Chaussé
140 K7

Thursday 17 June

09:00-09:25 Highlight Lecture – UAE National Space Program: Current Status and Upcoming Missions

HLL

Location: Duma Hall

The session will introduce the UAE National Space Program, highlighting the main pillars which are: 1) Satellite Development Program 2) Emirates Mars Mission (HOPE Probe) 3) UAE Astronaut Program 4) Mars 2117 strategy. 5) Space Ventures Program.

The session will present the current and future missions and projects under each pillar, focusing on the new ambitious initiatives announced recently: Emirates Lunar Mission, UAE Analog Mission, and Mars Science City.

Speaker:

Adnan AL RAIS
Senior Director, Remote Sensing Department and Program Manager, Mars 2117,
Mohammed Bin Rashid Space Centre (MBRSC),
United Arab Emirates

MODERATOR
Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

09:30-10:30 Plenary 4 – Human Roads to Outer Space - Real and Imaginary Dangers

PE

Location: Duma Hall

Outstanding progress of space medicine after 60 years of human flights at low Earth's orbits allowed long term presence (~ 18 month) of astronauts/ microgravity field exposed to the space radiation enhanced due to the lack of strong protective shielding of the Earth's atmosphere.

Outer space flights where even another shielding provided by the Earth's magnetic field vanishes impose very different and much more challenging set of limitations for human survival in this harsh environment. The experience here is limited only by relatively short-term historical Apollo flights.

Debates are still under way- when conditions are more favorable, say for Martian expeditions-during Solar Min or Solar Max. It is well known that flux of Galactic cosmic rays (most dangerous ingredient of space radiation) anticorrelates with intensity of Solar wind.

Special gravitational conditions at the MOON (1/6 of the Earth's gravitation) also provide many unknowns. While human adaptation to microgravity is rather well understood now— mid-term (1-2 months) presence of humans in small gravity will definitely require very different accommodation scenarios.

And last, not the least, Lunar Dust. Very aggressive toxic substance consisting of fine (starting from nanometers) charged particles with sharp edges sticking to space suits and penetrating to return vehicle according to notes of Apollo astronauts.

This is a list of main dangers for human flights to the Moon often discussed in mass media and producing serious concern not only of professionals but even usual taxpayers. Maybe some of these problems are exaggerated. This is natural and understandable, the prerequisite of any human exploration of outer space is safety of astronauts and their unique intellectual role during expedition which requires their support in excellent physical conditions.

The plenary event for GLEX 2021 will bring together specialists in different fields (gravitational medicine, space weather, dusty plasma, solar and galactic cosmic rays, space suits design, Landing vehicles protective systems, etc.,) to discuss comprehensively the problems mentioned above and hopefully identify some joint international efforts which will help to solve most important among them.

Speakers:

Ioannis DAGLIS (remotely)
President,
Hellenic Space Center,
Greece

Hanns-Christian GUNGA (remotely)
Deputy Director,
Institute of Physiology, Center for Space Medicine and Extreme Environments Berlin,
Germany

Vladimir KALEGAEV
Head of the Laboratory of Space Research,
Moscow State University (MSU),
Russian Federation

Bingxian LUO (remotely)
Associate Professor,
National Space Science Center, Chinese Academy of Sciences,
China

Oleg ORLOV
Director,
Institute for Biomedical Problems of the Russian Academy of Sciences (IBMP RAS),
Russian Federation

Lev ZELENYI (remotely)
President Space Research Institute,
Russian Academy of Sciences,
Russian Federation

MODERATOR
Anatoli PETRUKOVICH
Director of Space Research Institute,
Russian Academy of Sciences,
Russian Federation

11:00-11:30 IAF GNF – Design and Implementation of Chang'e-5 Robotic Sample Return Mission on Lunar Surface

Location: Duma Hall

The Chang'E-5 mission of 3rd phase of China's Lunar Exploration Program is the first sample return mission from other celestial body in China. The objective of Chang'E-5 probe is to implement lunar transfer and circumlunar orbit flight, land on the predefined site on lunar surface, collect lunar samples, lift-off on lunar surface, transfer lunar samples after rendezvous on lunar orbit, Earth transfer flight and re-enter Earth atmosphere, and bring lunar samples back to Earth safely at last. The technical features, brief introduction and development process of Chang'E-5 probe are described in the paper. At the same time, the breakthrough and innovation of key technologies are summarized. The flight results are given as well. The implementation results on orbit shows that the function and specifications of Chang'E-5 satisfied the requirements, and the design was validated.

Organized by:

Speaker:

Jing PENG (remotely)
Deputy Chief Designer of the Spacecraft System of the 3rd Phase of China's Lunar Exploration Program,
China Academy of Space Technology (CAST),
China

MODERATOR
Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

11:00-13:00 Technical Sessions

TS

No.	Title	Room
10.2	Space Resources (2)	Hall of Library
12.3	Transcending Societal Issues for Space Exploration (3)	Hall #16
2.4	Lunar Exploration (4)	Hall #1
5.1	Exploration of Other Destinations (1)	Hall #14
7.4	Key Technologies (4)	Hall #20
8.3	Challenges of Life Support/Medical Support for Human Missions (3)	Hall #9

11:40-12:10 IAF GNF – Global Exploration at A Cross Road: The Role of Europe

Location: Duma Hall

As history has shown, exploration transforms and adds value to society by providing:

• New knowledge acquired in new locales (science, technological progress); • A different perspective on our origins as a species ("pale blue dot" effect); • Fresh context for our societal value.

All this allows us to imagine the next reality, our next paradigm – something previously thought impossible.

Revamped political ambitions, the availability of more modern technologies, the access to more capital – both private and public – all contribute to setting humanity's sails on the most ambitious and global exploration initiative ever undertaken. Here, Europe and Europeans, a population of explorers, claim their role as a key international partner for the progress of humankind.

Airbus is pleased to organise a fireside chat with distinguished European guests to elaborate on European ambitions and capabilities in a global context.

Organized by: AIRBUS

Speakers:

Jean BLOUVAC
Programme manager for Human Spaceflight and Exploration activities,
Centre National d'Etudes Spatiales (CNES),
France

Silvio SANDRONE
Vice President New Programmes, Space Exploration,
Airbus Defence and Space GmbH,
Germany

Volker SCHMID
Mission Leader Cosmic Kiss,
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR),
Germany

Didier SCHMITT
Strategy and Coordination Group Leader for Human and Robotic Exploration,
European Space Agency (ESA),
Germany

MODERATOR
Pierre-Alexis JOUMEL
Director International & New Business, Space Systems,
Airbus Defence and Space GmbH),
Germany

12:20-12:50 IAF GNF – National Space Program of Turkish Space Agency (TUA)

Location: Duma Hall

The President of Turkish Space Agency (TUA), Mr. Serdar Hüseyin YILDIRIM is going to present National Space Program (NSP) of Turkey. NSP was declared on the 9th of February by the President of the Republic of Turkey, H. E. Mr. Recep Tayyip Erdogan. It is a comprehensive document which considers the latest developments in the world and reflects Turkey's main objectives, which the country has set for itself in the space field, as well as the steps which are being taken to achieve them. NSP ensures that the vision, strategies, objectives and projects on space policies are carried out in a coordinated and integrated manner. NSP determines 10 Main Strategic Goals along with many sub-goals. These strategic goals planned over the 10-year period contain great opportunities for all stakeholders related to space. This session is important in order to take advantage of today's opportunities and to realize these opportunities together with Turkey's capabilities in the field of space.

Organized by: TUA Turkish Space Agency

Speaker:

Serdar HÜSEYIN YILDIRIM
President,
Turkish Space Agency (TUA),
Turkey

MODERATOR
Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

14:00-15:00 Plenary 5 – Exploring Together - Opportunities, Challenges, and the Role of ISECG in Engaging Emerging Space Agencies

As the new era of space exploration unfolds, an increasing number of space agencies worldwide are becoming engaged in space exploration. This is evidenced by the dramatic expansion in the membership of the International Space Exploration Coordination Group (ISECG), an inter-agency coordination forum created in 2007 to advance individual and collective efforts in space exploration. In January 2018, ISECG produced the third edition of the Global Exploration Roadmap (GER), which captured a shared vision for human and robotic space exploration of 15 members agencies. Since then, ISECG membership has steadily increased, and many space agencies have renewed their focus on the Moon. These circumstances created an opportunity for ISECG to release, in August 2020, the Lunar Surface Exploration Scenario Update as a supplement to GER. This document, produced by 24 member agencies, laid out the latest mission scenario and architecture for human and robotic lunar surface missions, integrating renewed and emerging national plans and commercial capabilities among ISECG participating countries. As of today, ISECG has 26 member agencies.

The growing endeavors and participation by emerging agencies in space exploration mean that more countries, including their industry and citizens, would contribute to and benefit from space exploration. The increased opportunities arising from the enlarged programs of established agencies, availability of commercial transportation services and other capabilities, sharing of scientific data, and lower entry-to-barrier technologies such as cubesat are opening new possibilities for the emerging agencies. On the other hand, these agencies' added missions and investments could complement those of established agencies and create business opportunities for industries, contributing to the creation of sustainable global space exploration. However, it is also true that the emerging agencies are faced with technological, budgetary, and institutional challenges. Given the limited resources and expertise, it is not easy for the emerging agencies to carry out programs or missions of their own or to determine how best they could contribute to the global exploration effort in a coordinated manner.

This plenary session will bring together both established and emerging space agencies of ISECG to discuss these topics. The first part of the session will introduce the GER Supplement to highlights the growing global momentum in lunar exploration and present ISECG's shared vision and objectives and its approach towards the sustainable exploration of the Moon and preparation for human missions to Mars. Agencies will discuss the values of having a common scenario and architecture and explain how they aim to achieve their goals within the coordinated framework. The second part of the session will address challenges and opportunities for the emerging space agencies and the role of ISECG in fostering their participation in the global exploration. The discussion will focus on how synergies could be created between and among emerging and established space agencies and how the private sector capabilities could be leveraged in order to advance the global exploration community's common goals and object.

Speakers:

Salem AL MARRI
Assistant Director General for Science and Technology/ Astronaut Program Manager,
Mohammed Bin Rashid Space Centre (MBRSC),
United Arab Emirates

Gwanghyeok JU (remotely)
ISECG Emerging Space Agencies Working Group Co-Chair, Principal Researcher, Space Exploration Research Division,
Korea Aerospace Research Institute (KARI),
Republic of Korea

Salvador LANDEROS (remotely)
Director General,
Mexican Space Agency (AEM),
Mexico

Christian LANGE (remotely)
ISECG Chair, A/Director, Space Exploration Planning, Coordination and Advanced Concepts,
Canadian Space Agency (CSA),
Canada

Anthony MURFETT (remotely)
Deputy Head,
Australian Space Agency,
Australia

Grzegorz WROCHNA
President,
Polish Space Agency (POLSA),
Poland

MODERATOR
Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

15:30-16:30 IAF GNF MEDIA PANEL – A Roundtable on the Role of Media in Promoting Space Exploration

Location: Duma Hall

Space exploration is a topic of public interest and broad public support to space exploration is the foundation for creating political commitment. However, in the past, space institutions and advocacy bodies have not always been able to effectively convey the benefits that space exploration would bring to society. Media plays a key role in communicating highly complex and technical subjects to a broad public in an understandable way and – as such – is the link between the scientific community and society.

In this original and cutting-edge session, international journalists and media representatives will discuss some of the following topics:

- How has the way space exploration activities have been communicated and promoted to the non-space community and general public changed and evolved over the past 60+ years of the space era?
- How can space organizations (government, industry, academia) better communicate and promote space exploration plans and activities?
- What is the role of media in promoting space exploration?
- How have the communication strategies evolved with the advent of new platforms and channels, including social media?

Organized by:

Speaker:

Stephen COLE
Journalist,
CGTN Europe

Rachel CRANE (invited)
Innovation and space correspondent,
CNN

Anastasia MEDVEDEVA
Journalist,
Russia Today

Maxim PYADUSHKIN
Journalist,
Aviation Week

Georgy PODGORNY
Journalist,
Russia 24

Jackie WATTLES (invited)
Journalist,
CNN

MODERATOR
Remco TIMMERMANS
Founder and Social Media Specialist,
SpaceSide OÜ

15:30-17:00 Technical Sessions

No.	Title	Room
1.4	International Cooperation for Space Exploration (4)	Hall #14
11.3	Ground-Based Preparatory Activities (3)	Hall #9
2.5	Lunar Exploration (5)	Hall #1
3.4	Mars Exploration (4)	Hall of Library
5.2	Exploration of Other Destinations (2)	Hall #20
7.5	Key Technologies (5)	Hall #16

16:30-17:00 IAF GNF – Next Stop - IAC 2021 In Dubai

Location: Duma Hall

In this session, the IAF and MBRSC will present their plans and the preliminary programme for the upcoming IAC 2021, taking place in Dubai from 25 to 29 October 2021. Make sure to attend the session to have all the latest insights on this exciting event!

Organized by:

Speakers:

Salem AL MARRI
Assistant Director General for Science and Technology/ Astronaut Program Manager,
Mohammed Bin Rashid Space Centre (MBRSC),
United Arab Emirates

Adnan AL RAIS
Senior Director, Remote Sensing Department and Program Manager, Mars 2117,
Mohammed Bin Rashid Space Centre (MBRSC),
United Arab Emirates

Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

17:00-17:45 Closing Ceremony

Location: Duma Hall

The Closing Ceremony provides a formal end to the activities of the GLEX 2021. It will feature some remarks from IAF and ROSCOSMOS leadership, as well as from the GLEX IPC Co-Chairs. It will also include a highlight video of the entire Conference and the announcement of the Best Technical Presentations Award. Don't miss it!

Speakers:

Pascale EHRENFREUND
President,
International Astronautical Federation (IAF),
France

Sergey KRIKALEV
GLEX 2021 IPC Co-Chair, Special Advisor to the Director General,
ROSCOSMOS,
Russian Federation

Christian SALLABERGER (remotely)
GLEX 2021 IPC Co-Chair, President and CEO,
Canadensys Aerospace Corporation,
Canada

Sergey SAVELIEV
Deputy Director General for International Cooperation,
State Space Corporation ROSCOSMOS,
VP for Relations with International Organizations, International Astronautical Federation (IAF),
Russian Federation

MODERATOR
Christian FEICHTINGER
Executive Director,
International Astronautical Federation (IAF),
France

5 SOCIAL AND CULTURAL PROGRAMME

5.1 Welcome Reception

Tuesday 15 June 2021 18:30-20:30

Location: Tavrichesky Palace - Catherine Hall

5.2 Gala Dinner

Wednesday 16 June 2021 19:30-00:00

19:30 – 20:30 Welcome Cocktail
20:30 – 00:00 Gala Dinner offered by Saint Petersburg

Location: The “Summer Palace” Restaurant, Saint Petersburg Chaussé, 140 K7

The “Summer Palace” restaurant is located on the Saint-Petersburg highway, a stone’s throw from the famous fountains of Peterhof, next to the Sergievka and Alexandria parks.

During the evening guests will have a memorable dinner with different exquisite dishes. They also will become a spectators of a fantastic cultural programme, which includes ballet of the Mikhailovsky theater, performance of gymnastics and singers and even popular fragments from the most famous musicals.

5.3 Excursions

Date	Morning excursion program		Evening excursion program	
Starting Point	The Sightseeing tours will start from **Isaakievskaya Square (bus stop next to St.Isaak Cathedral)** Please be at the collecting point **at least 5 minutes before departure**		Evening excursion program The bus with the guide will collect the groups from **Tavrichesky Palace at 15:45 each day.** Please be at the collecting point **at least 5 minutes before departure**.	
14.06.2021	City bus excursion (for 50 pers.)	Excursion to the Peter and Paul Fortress with a visit to the Cosmonautics Museum (for 50 pers.)	Excursion to the Fabergé Museum (50 pers.)	Boat sightseeing tour (50 pers.)
Groups	50 pers.	16 pers. 17 pers. 17 pers.	16 pers. 17 pers. 17 pers.	50 pers.
Time	**10:00 – 11:00**	**11:30 – 14:00**	**Tavrichesky Palace at 15:45**	**Tour ends at 19:00 at pier Moika 41**
15.06.2021	City bus excursion (for 50 pers.)	Excursion to the Peter and Paul Fortress with a visit to the Cosmonautics Museum (for 50 pers.)	Excursion to the Yusupovsky Palace (50 pers.)	Boat sightseeing tour (50 pers.)
Groups	50 pers.	16 pers. 17 pers. 17 pers.	10 pers. 10 pers. 10 pers. 10 pers. 10 pers.	50 pers.
Time	**10:00 – 11:00**	**11:30 – 14:00**	**Tavrichesky Palace at 15:30**	**Tour ends at 19:00 at pier Moika 41**
16.06.2021	City bus excursion (for 50 pers.)	Excursion to the Peter and Paul Fortress with a visit to the Cosmonautics Museum (for 50 pers.)	Excursion to the Fabergé Museum (50 pers.)	Boat sightseeing tour (50 pers.)
Groups	50 pers.	16 pers. 17 pers. 17 pers.	16 pers. 17 pers. 17 pers.	50 pers.
Time	**10:00 – 11:00**	**11:30 – 14:00**	**Tavrichesky Palace at 15:45**	**Tour ends at 19:00 at pier Moika 41**
17.06.2021	City bus excursion (for 50 pers.)	Excursion to the Peter and Paul Fortress with a visit to the Cosmonautics Museum (for 50 pers.)	Excursion to the Fabergé Museum (50 pers.)	Boat sightseeing tour (50 pers.)
Groups	50 pers.	16 pers. 17 pers. 17 pers.	16 pers. 17 pers. 17 pers.	50 pers.
Time	**10:00 – 11:00**	**11:30 – 14:00**	**Tavrichesky Palace at 15:45**	**Tour ends at 19:00 at pier Moika 41**
18.06.2021	Departure to Peterhof by bus and excursion to the Peterhof State Museum-Reserve Way back by a meteor	Departure to Peterhof by bus and excursion to the Peterhof State Museum-Reserve Way back by a meteor	Departure to Peterhof by bus and excursion to the Peterhof State Museum-Reserve Way back by a meteor	
Groups	**Group 1**	**Group 2**	**Group 3**	
Time	**Departure to Peterhof by buses** with English or Russian Speaking Guides. Meeting point at **Isaakievskaya Square (bus stop next to St.Isaak Cathedral) starting from 7:45**. **Departure starts from 8:00**. as buses fill up and groups completed. Excursion to the State Peterhof Museum (Palace and Gardens) Way back by Meteors at the end of the tour.		**Departure to Peterhof by buses** with English or Russian Speaking Guides. Meeting point at **Isaakievskaya Square (bus stop next to St.Isaak Cathedral) starting from 8:10**. **Departure starts from 8:20**. as buses fill up and groups completed. Excursion to the State Peterhof Museum (Palace and Gardens) Way back by Meteors at the end of the tour.	

Russian Speaking Groups

To select the timing of your visit to **Peterhof State Museum Reserve** of Friday 18 June and to book any other excursion, please, contact martina.fabbiani@iafastro.org

5.3.1 City bus excursion

Monday 14 June - Thursday 17 June 2021 **10:00-11:00**

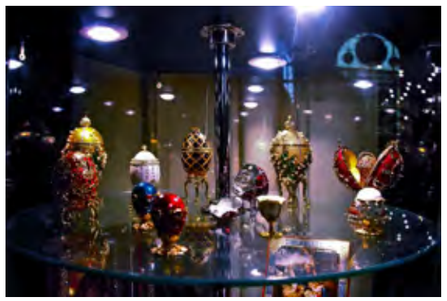
Pick-up point:
Isaakievskaya Square (bus stop next to St. Isaak Cathedral) at 10:00.

5.3.2 Excursion to the Peter and Paul Fortress

Monday 14 June - Thursday 17 June 2021 **11:30-14:00**

5.3.3 Excursion to the Faberge Museum

Monday 14 June - Thursday 17 June 2021 **16:30-17:00**



Pick-up point:
Tavrichesky Palace (Conference Venue) at **15:45**

5.3.4 Boat sightseeing tour

Monday 14 June - Thursday 17 June 2021 **17:40-19:00**

5.3.5 Visit to Peterhof Park and Palace

Friday 18 June 2021

Pick-up point:

Group 1 and 2

Meeting point at Isaakievskaya Square (bus stop next to St. Isaak Cathedral) **starting from 07:45.**

Departure starts from 8:10, as buses fill up and groups are completed.

Group 3

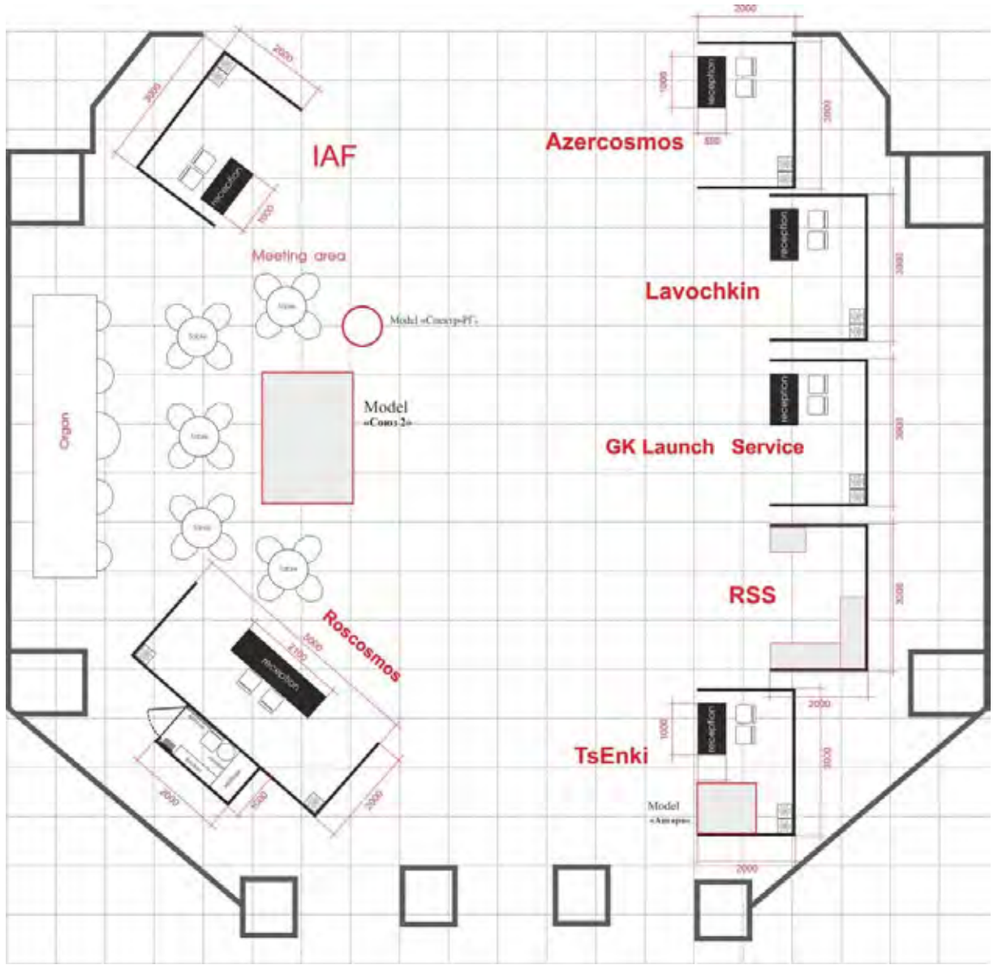
Isaakievskaya Square (bus stop next to St. Isaak Cathedral) **starting from 8:10**.

Departure starts from 8:20. as buses fill up and groups completed.

Discover all the other attractions St. Petersburg has to offer such as the **Hermitage**, the **Russian Museum**, the **Elagin Island**, or the **Mosaic Courtyard**!

6 EXHIBITION

6.1 Exhibition Area Floorplan



8.2 List of Exhibitors

	Azercosmos
azercosmos customized excellence	***Contact:*** *Rena Jafarova* **Address:** Uzeyir Hajibayli str. 72, Central Post building, 5th floor, Baku, AZ1000 Azerbaijan
	Tel: +994 12 310 0055 +994 12 565 0055 **Mail:** info@azercosmos.az **Web:** www.azercosmos.com **Social Media:** **LinkedIn**: https://bit.ly/2SLmTfy **Facebook:** https://www.facebook.com/Azercosmosofficial/ **Twitter:** https://twitter.com/Azercosmos1
	Established in 2010, Azercosmos is the first and only satellite operator in the South Caucasus region, providing satellite-delivered telecommunication and Earth observation services to enterprises and governmental institutions across Europe, Africa, Middle East, Central and South Asia and the CIS region. Apart from satellite operations, Azercosmos seeks to drive technological advancement, contributes to the welfare of the Azerbaijani community though CSR initiatives and strengthens its position as a reliable partner in the international space arena. Azercosmos will welcome the global space community to the 74th International Astronautical Congress (IAC) in Baku in 2023, and will offer an exceptional congress experience, immersing participants into the elegant fusion of the past and the future.

	GK Launch Services
GK LAUNCH SERVICES	***Contact:*** *Mila Savelyeva* **Address:** 26/1 Prospekt Mira Ave., Moscow, 129090 Russian Federation
	Tel: +7 495 150-44-72 ext. 122 **Mail:** info@gklaunch.ru **Web:** http://gklaunch.ru **Social Media:** **Twitter**: https://twitter.com/gk_launch **Facebook:** https://www.facebook.com/gklaunch/ **LinkedIn:** https://www.linkedin.com/company/gk-launch-services **Instagram:** https://www.instagram.com/gklaunch/
	GK Launch Services is a commercial operator of spacecraft launches. The core business of GK Launch Services is to set up and perform commercial launches using Soyuz-2 LV. The company's prime mission is to develop the commercial launch sector and promote Russian launch vehicles on the global market.

International Astronautical Federation (IAF)

Contact:
Martina Fabbiani

Address:
100 Avenue de Suffren
75015 Paris
France

Tel: +33 1 45 67 42 60
Mail: info@iafastro.org
Web: www.iafastro.org

Social Media:
Be part of the conversation @iafastro

Founded in 1951, the International Astronautical Federation is the world's leading space advocacy body with more than 407 members, 71 countries on six continents, including all leading agencies, space companies, societies, associations and institutes worldwide.

Following its theme "A space-faring world cooperating for the benefit of humanity", the Federation advances knowledge about space and fosters the development and application of space assets by advancing global cooperation.

As the organizer of the annual International Astronautical Congress (IAC), and other meetings on specific space-related topics, the IAF actively encourages the development of astronautics for peaceful purposes and supports the dissemination of scientific and technical information related to space.

Lavochkin Science and Production Association (Lavochkin Association)

Contact:
Pavel Primakov

Address:
24, Leningradskaya ulitsa, Khimki,
Moscow region,
Russian Federation, 141402

Tel: +7 495 575 51 56
Mail: PrimakovPV@laspace.ru
Web: www.laspace.ru

Social Media:
Facebook: NPOLavochkina
Instagram: laspace_ru

Lavochkin Association is a large design, scientific and production association, one of the leading companies of the Russian space industry. The enterprise develops and produces space systems for science purposes, unmanned spacecraft (including small spacecraft) for astrophysical and planetary research, Earth remote sensing, studies of solar-terrestrial relations as well as orbit-injection means (upper stages, fairings, transfer compartments), unified space platforms, hardware and software complexes for tests and flight control. The company performs a total cycle of spacecraft preparation for flight: ground tests, preparation at the launch pad, control from the Mission Control Center, ballistic support of interplanetary missions and near-Earth spacecraft.

Lavochkin Association cooperates with a wide range of foreign partners. The company has developed and manufactured the Spektr-R spacecraft for the RadioAstron International Progect, the Spektr-RG astrophysical space observatory and is developing a descent module with a landing platform for the ExoMars-2022 mission.

Number of employees: 4,500+

Year of foundation: 1937

ROSCOSMOS

Contact:
Khramova Evgenia

Address:
42, Schepkina st.,
Moscow,
Russian Federation, 107996

Tel: +7 (495) 631-9-888
Mail: info@roscosmos.ru
Web: www.roscosmos.ru

Social Media:
Facebook: ROSCOSMOS
Instagram: roscosmosofficial
Twitter: Twitter.com/Roscosmos
Telegram: t.me/Roscosmos_gk
Youtube: user/tvroscosmos

ROSCOSMOS is a State Corporation that was established in August 2015 to oversee and implement a comprehensive reform of the Russian space industry. The state corporation ensures the implementation of the Russian government's space program and its legal regulation. ROSCOSMOS is also placing orders for the development, manufacture, supply of space equipment and space infrastructure objects and responsible for international space cooperation and tasked with setting the stage for the future use of results of space activities in the social and economic development of Russia.

Russian Space Systems, JSC

Contact:
Denis Efimtcev

Address:
111250, Aviamotornaya st. 53,
Moscow, Russian Federation

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Mail: marketing@spacecorp.ru
Web: http://russianspacesystems.ru/

Russian Space Systems, JSC (RSS, part of ROSCOSMOS) focuses on development, manufacturing and operation of space information systems. Main capabilities: development and operation of global navigation system GLONASS; COSPAS-SARSAT system; ground-based stations for ERS information receiving and processing. RSS group of companies includes Research Institute of Precision Instruments, Scientific, Research, Production Corporation of Measuring Equipment, Research Institute for Physical Measurement, Special Research Bureau of Moscow Power Engineering Institute, Orion Scientific Production Association.

	TsENKI

Contact:
Gagarinskiy Mikhail

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Address: Shchepkin str., 42,
Moscow,
Russian Federation, 129110

Tel: +7 (499) 912-84-75, def. 32-142
Mobile: 8-910-424-50-19.
Mail: m.gagarinskiy@russian.space
Web: https://www.russian.space

Social Media:
Facebook: https://www.facebook.com/russian.spaceports
Instagram: https://www.instagram.com/russian_space/
https://vk.com/russian.spaceports

Joint stock company “Center for Operation of Space Ground Based Infrastructure” (JSC “TsENKI”) is one of the largest enterprises in the space rocket industry of Russia. The main task of JSC “TsENKI” is provision of accident-free launches as well as creation of ground based infrastructure for cosmodromes.

JSC “TsENKI” specialists are successors of launch and technical complexes designers having provided launches of first spacecrafts from Baikonur cosmodrome and blazed a trail into space for all mankind.

Due to long experience and accumulated knowledge, JSC “TsENKI” possesses great scientific and technical potential that allows to achieve high results and retain the leading position in launch service market.

Vostochny cosmodrome is a new page in the history of Russian cosmonautics. JSC “TsENKI” became a focal developer of ground launch and support equipment for the cosmodrome.

Today our company keeps up the best traditions of national space science and industry, implementing the advanced technologies and management solutions in order to provide reliable, safe and reasonable priced launches of different launch vehicles from existing and prospective launch sites in the nearest future.

7 TECHNICAL PROGRAMME

7.1 Topics Overview

1. International Cooperation for Space Exploration

International coordination of scientific and technical objectives (ISECG; COSPAR;..), International Missions, Sharing of Scientific Mission Data, etc.

2. Lunar Exploration

Robotic missions; Human missions; Moon Village; Outposts and Bases; Lunar orbital infrastructure

3. Mars Exploration

Current missions; Mars sample return ; Missions to Phobos/Diemos ; Human missions

4. Exploration of Near-Earth Asteroids

Robotic missions; Human missions; Planetary Defense

5. Exploration of Other Destinations

Mercury missions; Venus missions; Outer Planet missions; Finding planets around other stars; Astronomy;

6. Space Transportation

New propulsion systems; Commercial lunar landers; etc

7. Key Technologies

EDL; Robotics; GNC; Advanced Vision Systems; Radiation Robustness; Thermal technologies (RTG’s, Loop Heat Pipes); Dust mitigation; etc.

8. Challenges of Life Support/Medical Support for Human Missions

Life support; Medical care; Crew Selection/Training; etc.

9. Space Stations

Supporting exploration via the ISS; Gateway; other space stations current and planned.

10. Space Resources

Lunar Oxygen/Water extraction; Mineral exploration; Helium-3; Fuel production on Moon/Mars/Asteroids; Other In-situ resource use;

11. Ground-Based Preparatory Activities

Analogue missions and deployments; Technology demonstrations; Simulations; Test facilities

12. Transcending Societal Issues for Space Exploration

Legal issues/models/regimes; public awareness and education; new commercial industrial models to enable space exploration; governance of future stations/outposts/bases; Policy issues; etc.

7.2 Information for Authors

All authors have been asked to upload their materials prior to the Conference in order to make them available to all participants on the Virtual Technical Gallery and the online Proceedings of the GLEX 2021. You can still update your manuscripts through the IAF platform: https://iafastro.directory/iac/account/login/.

All authors shall bring their final presentation on a USB memory stick and load it into the computer in the Technical Session rooms no later than one day prior to their presentation. Speakers are requested to report to their allocated Technical Session room 20 minutes prior to the start of their session to meet with their Session Chair and to check their presentation. Do not forget also to bring two printed courtesy copies of your manuscript. Some Session Chairs might also ask you for a short biography to introduce you at the session.

7.3 Best Technical Presentations Award

The **GLEX 2021 Best Technical Presentations Award** is a recognition which celebrates the most inspiring and effective video lecture presentations that are delivered by impactful and engaging authors of the conference Technical Programme.

This award will be given for the three most outstanding presentations in the entire conference and results will be announced at the Closing Ceremony on 17 June.

Jury:

Pascale EHRENFREUND
President,
International Astronautical Federation (IAF)

S. SOMANATH
VP for Technical Activities,
International Astronautical Federation (IAF)

Mary SNITCH
VP for Global Conferences,
International Astronautical Federation (IAF)

Sergey KRIKALEV
GLEX 2021 IPC Co-Chair

Christian SALLABERGER
GLEX 2021 IPC Co-Chair

7.4 Virtual Technical Gallery

GLEX 2021 will be marked by the launch of the **«The Virtual Technical Gallery»**, the most innovative IAF tool.

The Virtual Technical Gallery is a user-friendly digital platform and will host a vibrant mix of more than 250 brilliant video lectures, engaging lightning talks and full manuscripts. All registered participants will receive a custom Access Key ID and will be able to display the content of the respective Technical Sessions just after 08:00 (MSK) on each day following the onsite presentations.

Registered participants can scan the QR code or click on https://dl.iafastro.directory/gallery/GLEX-2021/ to access the VTG with their Access Key. In case you have not received your Access Key ID, please check your spam folder or contact: **digital.library@iafastro.org**

7.5 Certificates of Attendance

Requests shall be addressed at **support@iafastro.org**

7.6 Proceedings

The GLEX 2021 proceedings are available on a password protected site.
All registered participants will be provided after the conference with a link and online password to login and access the online proceedings.

If you do not receive the password, please contact: **support@iafastro.org**.
Papers will be indexed in the world's leading citation databases: Elsevier's SCOPUS and Compendex.

7.7 Technical Keynotes

Keynotes

Seemingly Different Impact of Spaceflight On NASA, ESA and ROSCOSMOS Space Crew Regarding the Perivascular Space

Track 8.1 - Challenges of Life Support/Medical Support for Human Missions

Date: Tuesday 15 June
Time: 15:30

Speaker:

Floris L. WUYTS
Head of Lab for Equilibrium Investigations and Aerospace (LEIA),
University of Antwerp,
Belgium

Human Spaceflight from Guiana Space Center

Track 6.1 - Space Transportation

Date: Wednesday 16 June
Time: 11:00

Speaker:

Christophe BONNAL (prerecorded)
Senior Expert,
Launch Systems,
Centre National d'Etudes Spatiales (CNES)
France

Modern Trends of Spacecraft Power-And-Propulsion Systems

Track 6.2 - Space Transportation

Date: Wednesday 16 June
Time: 16:30

Speaker:

Alexander SEMENKIN
Head of Department at Keldysh Research Centre,
S.P. Korolev Rocket and Space Corporation Energia,
Russian Federation

Small Probes for Deep Space Exploration

Track 7.4 - Key Technologies

Date: Thursday 17 June
Time: 11:00

Speaker:

Pierre W. BOUSQUET (prerecorded)
Senior Expert Planétologie, Exploration and MicroPesanteur
Centre National d'Etudes Spatiales (CNES),
France

7.8 Technical Papers

TS

For the latest updates, please consult: https://iafastro.directory/iac/browse/GLEX-2021/

1. International Cooperation for Space Exploration

1.1. International Cooperation for Space Exploration (1)

June 15 2021, 15:30 — Hall of Library

Chair(s): Victor Leonov, Bauman Moscow State Technical University, Russian Federation;

GLEX-2021.1.1.1
A STRATEGIC OUTLOOK FOR SPACE EXPLORATION: ON THE VERGE OF A NEW ERA?
Natalia Larrea Brito, Euroconsult, Canada

GLEX-2021.1.1.2
AN UPDATED REFERENCE LUNAR SURFACE EXPLORATION SCENARIO FOR THE GLOBAL EXPLORATION ROADMAP (GER): THE GROWING GLOBAL EFFORT AND MOMENTUM GOING FORWARD TO THE MOON AND MARS
Stefaan De Mey, European Space Agency (ESA), The Netherlands

GLEX-2021.1.1.3
AN INTERNATIONAL APPROACH TO THE COORDINATION OF TECHNOLOGY DEVELOPMENT EFFORTS ENABLING THE GLOBAL EXPLORATION ROADMAP
Christian Lange, Canadian Space Agency, Canada

GLEX-2021.1.1.4
FREQUENCY ALLOCATION AND REGISTRATION PROCESS FOR SPACE EXPLORATION MISSIONS
Chuen Chern Loo, International Telecommunication Union (ITU), Switzerland

GLEX-2021.1.1.5
BUILDING A FOUNDATION FOR FUTURE INTERNATIONAL COOPERATION THROUGH IMPLEMENTATION OF INTERNATIONAL COMPONENT INTO TRADITIONAL AEROSPACE CURRICULUM.
Olga Bannova, University of Houston, United States

GLEX-2021.1.1.6
CLOSING THE GAP IN SPACE LAW: AN IMPLEMENTATION AGREEMENT FOR THE MOON TREATY THAT SUPPORTS ALL PRIVATE ACTIVITY WHILE PROTECTING ESSENTIAL PUBLIC POLICIES
Dennis O'Brien, Space Treaty Project, United States

GLEX-2021.1.1.7
DEMOCRATIZING ACCESS TO SPACE BY APPLICATION OF UN NPS PRINCIPLES IN ROBOTIC AND CREWED MARS-/EUROPA-INTERNATIONAL NUCLEAR POWER AND PROPULSION SYSTEM FLAGSHIP (INPPS)
Frank Jansen, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

GLEX-2021.1.1.8
DEVELOPMENT OF A PRIVATE SPACE SECTOR IN THE U.S. AND RUSSIA
Arzu Kurgan, Skolkovo Institute of Science and Technology, Russian Federation

GLEX-2021.1.1.9
EMERGING TECHNOLOGIES AND GROUNDBREAKING INVENTIONS OF JSC RKTS PROGRESS - TENETS OF REPORT
Ravil Akhmetov, JSC SRC Progress, Russian Federation

GLEX-2021.1.1.10
INVESTIGATING YOUTH CONTRIBUTION TO THE DEVELOPMENT OF THE AFRICAN SPACE INDUSTRY
Ruvimbo Samanga, Space Generation Advisory Council (SGAC), South Africa

GLEX-2021.1.1.11
MOON CONSORTIUM FOR CLIMATE CHANGE MITIGATION
Ghanim Alotaibi, , Kuwait

GLEX-2021.1.1.12 (non-confirmed)
PHISIOLOGICAL STATUS OF SEVEN-DAY SPACE FLIGHT PARTICIPANT
Kotov Oleg, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation

1.2. International Cooperation for Space Exploration (2)

June 16 2021, 11:00 — Hall of Library

Chair(s):Victor Leonov, Bauman Moscow State Technical University, Russian Federation;

GLEX-2021.1.2.1
ISPACE'S INTERNATIONAL MISSION TO THE MOON
Kyle Acierno, ispace, Inc, Luxembourg

GLEX-2021.1.2.2
INTERNATIONAL COOPERATION IN SPACE EXPLORATION : MANAGING THE LOW EARTH ORBITAL ISSUES: ABSTRACT BY DR SANAT KAUL
Sanat Kaul, India

GLEX-2021.1.2.4
CAPACITY BUILDING IN THE AFRICAN SPACE INDUSTRY: DRIVING INNOVATION THROUGH TECHNOLOGY TRANSFER
Ruvimbo Samanga, Space Generation Advisory Council (SGAC), South Africa

GLEX-2021.1.2.5
MITIGATING ORBITAL DEBRIS
Reenah Tamilarasu, National University of Singapore

GLEX-2021.1.2.6
COOPERATION AND CAPACITY-BUILDING OF ASIA-PACIFIC COUNTRIES FOR SPACE EXPLORATION
Harlee Quizzagan, Space Generation Advisory Council (SGAC), The Philippines

GLEX-2021.1.2.7 (non-confirmed)
INTERNATIONAL PARTNERSHIPS - CONCEPTS, CONSENSUS, PARTNERSHIPS TO PROJECTS WITH ISECG
Matthew Bamsey, Canadian Space Agency, Canada

GLEX-2021.1.2.8
INTERNATIONAL RESPONSIBILITY FOR WRONGFUL ACTS IN SPACE EXPLORATION – APPLICATION OF OBLIGATIONS ERGA OMNES TO THE OUTER SPACE.
Krzysztof Niewęgłowski, Space Generation Advisory Council (SGAC), Poland

GLEX-2021.1.2.9 (non-confirmed)
INTERNATIONAL COOPERATION FOR SPACE EXPLORATION VS. NATIONALISM(S) IN OUTER SPACE
ITIR TOKSÖZ,, Turkey

GLEX-2021.1.2.10
HARMONISED SYSTEM OF SECURED TRANSACTIONS FOR SPACE ASSETS - THE SPACE PROTOCOL OF THE CAPE TOWN CONVENTION
Hamza Hameed, Unidroit, Italy

1.3. International Cooperation for Space Exploration (3)

June 16 2021, 14:00 — Hall of Library

Chair(s): Vincenzo Giorgio, Thales Alenia Space Italia, Italy;

GLEX-2021.1.3.1
MR. DMITRY LOSKUTOV, GLAVKOSMOS DIRECTOR GENERAL INTERNATIONAL COOPERATION FOR SPACE EXPLORATION
Dmitry Loskutov, JSC Glavkosmos, Russian Federation

GLEX-2021.1.3.2
RUSSIAN LUNAR EXPLORATION PROGRAM OPPORTUNITIES FOR INTERNATIONAL COOPERATION
Mariya Danilova, Central Research Institute for Machine Building (JSC TSNIIMASH), Russian Federation

GLEX-2021.1.3.3 (non-confirmed)
RUSSIAN COMPLEX OF RECEIVING OF SCIENCE DATA AS PART OF JOINT GROUND SEGMENT FOR EXOMARS MISSION
Vladimir Nazarov, Space Research Institute (IKI), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.1.3.4
PAKISTAN'S ROLE IN GLOBAL SPACE EXPLORATION- THE PAST, PRESENT AND FUTURE
Noman Subhani, SUPARCO, Pakistan

GLEX-2021.1.3.5
PAVING THE WAY TOWARDS UNIVERSALIZATION: MULTIPLYING SUCCESS AND VALUE THROUGH GLOBAL COLLABORATION
Paul Kiesling, BLUECUBE Aerospace, United States

GLEX-2021.1.3.6 (non-confirmed)
ON THE FEASIBILITY OF LANDING THE DREAM CHASER SPACE VEHICLE IN SOUTH AFRICA
Luke Colvin, Private, South Africa

GLEX-2021.1.3.7 (non-confirmed)
PROSPECTS AND CHALLENGES OF NIGERIA VENTURING INTO DEEP SPACE EXPLORATION
Joseph O Akinyede, African Regional Center for Space Science and Technology Education in English (ARCSSTE-E), Nigeria

GLEX-2021.1.3.8 (non-confirmed)
MODERN AND CONTEMPORARY EUROPEAN PHILOSOPHY FOSTERS SPACE HUMANITIES: THE EUROPEAN SPACE AGENCY (ESA) REINFORCES THE INTERNATIONAL COOPERATION FOR SPACE EXPLORATION
ABHISHEK AKASH DIGGEWADI, International Space University (ISU), France

GLEX-2021.1.3.9
PROBLEMS OF ANTHROPOGENIC POLLUTION OF SPACE
Shehret Tilvaldyev, Universidad Autonoma de Ciudad Juarez, Canada

1.4. International Cooperation for Space Exploration (4)

June 17 2021, 15:30 — Hall #14

Co-Chair(s): Fritz Merkle , OHB System AG-Bremen, Germany; Anatoli Petrukovich , Institute for Space Research, Russian Federation;

GLEX-2021.1.4.1
THE COSPAR PANEL ON PLANETARY PROTECTION: RECENT ACTIVITIES
Athena Coustenis, LESIA - Observatoire de Paris, France

GLEX-2021.1.4.3
THINKING OF INTERNATIONAL COOPERATION FOR SPACE EXPLORATION
Yinglei Shan, China Academy of Space Technology (CAST), China

GLEX-2021.1.4.4
UNIVERSITY COLLABORATION MECHANISMS FOR COOPERATIVE INTERNATIONAL SPACE MISSIONS
Michael McGrath, University of Colorado Boulder, United States

GLEX-2021.1.4.5
THE MILO SPACE SCIENCE INSTITUTE: A NEW APPROACH TO SPACE SCIENCE.
Lindsay Papsidero, Lockheed Martin (Space Systems Company), United States

GLEX-2021.1.4.6
SPACE FOR AFRICA, KNOWLEDGE AND DEVELOPMENT:THE AFRICA UNION VISION 2063 IN ACTION
Tomukum Chia, GLOCECOHADIM, Cameroon

GLEX-2021.1.4.7
THE AUSTRALIAN SPACE AGENCY'S FIRST ROADMAPS AND PRIORITIES FOR EXPLORATION
Katherine Bennell, Australian Space Agency, Australia

GLEX-2021.1.4.8 (non-confirmed)
THE CASE OF INSPIRING ARAB YOUTH, HOW THE UAE IS PREPARING THE NEXT GENERATION OF ARAB SPACE PROFESSIONALS IN THE REGION.
Raihana Alhashmi, UAE Space Agency, United Arab Emirates

GLEX-2021.1.4.9
"PRINCIPLES FOR COOPERATIVE ADR": A VIABLE PATH FOR REMEDIATION OF HIGH MASS DERELICT OBJECTS IN CROWDED LOW EARTH ORBITS?
Chuck Dickey, United States

2. Lunar Exploration

2.1. Lunar Exploration (1)

June 15 2021, 15:30 — Hall #1

Chair(s): Julie Patarin-Jossec , Russian Academy of Sciences, Russian Federation;

GLEX-2021.2.1.1 (non-confirmed)
FROM LUNA-25 TO LUNA-29: ROBOTIC MISSIONS AS PRECURSORS OF HUMANS AT LUNAR SOUTH POLE
Igor Mitrofanov, Institute for Space Research, Russian Federation

GLEX-2021.2.1.2
ARTEMIS ACCORDS; CONTEXT, RISKS AND THEIR RELATION TO THE MOON AGREEMENT
Sofia Stellatou, Institute of Air and Space Law, McGill University, Greece

GLEX-2021.2.1.3
GLEX 2021 REPORT FROM INTERNATIONAL LUNAR EXPLORATION WORKING GROUP: ILEWG TASK GROUPS, ROADMAP, HIGHLIGHTS AND RESULTS DURING 2020 PANDEMICS
Bernard Foing, ILEWG "EuroMoonMars", The Netherlands

GLEX-2021.2.1.4
ARCHITECTING A SUSTAINABLE LUNAR INFRASTRUCTURE
Christine Edwards, Lockheed Martin (Space Systems Company), United States

GLEX-2021.2.1.6
AFRICA'S PROGRESS TOWARDS HUMAN & ROBOTIC SPACE EXPLORATION
Ruvimbo Samanga, Space Generation Advisory Council (SGAC), South Africa

GLEX-2021.2.1.7
CIS-SIM FACILITY: THE GALILEO-BASED EUROPEAN NAVIGATION AND COMMUNICATION CONSTELLATION SIMULATOR FOR THE CIS-LUNAR SOCIETY
Kilian Höflinger, Germany

GLEX-2021.2.1.8
CONCEPT ARCHITECTURE OF SATELLITE CONSTELLATION FOR ESTABLISHING UNINTERRUPTED PERENNIAL COMMUNICATION LINK BETWEEN A SINGLE GROUND TRACKING STATION AND A LUNAR POLAR OUTPOST
Neelesh Ranjan Saxena, TU Berlin, Germany

GLEX-2021.2.1.9
CALIFORNIA RESEARCH ANALOG FOR DEEPSPACE AND LUNAR EXPLORATION - VIRTUAL OPERATIONS AND TELEROBOTICS
Chrishma Singh-Derewa, United States

GLEX-2021.2.1.10
ANALOG-1 - AN ANALOGUE MISSION TO GUIDE ESA'S ROBOTIC MOON EXPLORATION EFFORTS
Kjetil Wormnes, European Space Agency (ESA), The Netherlands

GLEX-2021.2.1.11
FIRST STEPS TOWARDS A MOON VILLAGE: ASSESSING THE FEASIBILITY OF A SMALL MODULAR LUNAR HABITAT
Nick Gollins, European Space Agency (ESA), The Netherlands

GLEX-2021.2.1.12
EUROHAB: CONCEPT OF AN INFLATABLE HABITAT PAYLOAD AS SUPPORT TO CREWED MISSIONS ON THE LUNAR SURFACE
Peter WEISS, Spartan Space, France

GLEX-2021.2.1.13
EMMIHS-III: EUROMOONMARS, INTERNATIONAL MOONBASE ALLIANCE AND HI-SEAS SIMULATION CAMPAIGN OUTCOMES
Priyanka Das Rajkakati, Institut Supérieur de l'Aéronautique et de l'Espace (ISAE), France

GLEX-2021.2.1.14
INTELLIGENT GREENHOUSE FOR LONG MISSIONS ON THE MOON
Luz Miranda Atilano Herrera, Universidad Popular Autónoma del Estado de Puebla, Mexico

GLEX-2021.2.1.16
DEEP SEMANTIC CLASSIFICATION OF VISUAL INPUTS FOR HAZARD FREE LUNAR LANDING
Janhavi Borse, University of Pune, India

GLEX-2021.2.1.18
"DRY" IMMERSION AS A PHYSIOLOGICAL MODEL FOR LUNAR MISSION
Nikita Shishkin, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation

2.2. Lunar Exploration (2)

June 16 2021, 14:00 — Hall #20

Chair(s): Bernard Foing, ILEWG "EuroMoonMars", The Netherlands;

GLEX-2021.2.2.1
50 YEARS OF LUNOKHOD-1 AND LUNAR ROVING VEHICLE (LRV-1): AT THE ORIGINS OF MOBILE SPACE TECHNOLOGY
Mikhail Malenkov, Russian Federation

GLEX-2021.2.2.2
ISPACE'S 2022 & 2023 MISSION TO THE MOON
Kyle Acierno, ispace, Inc, Luxembourg

GLEX-2021.2.2.3
ILOA UPDATE JUNE 2021: 5 MOON MISSIONS
Steve Durst, International Lunar Observatory Association (ILOA), United States

GLEX-2021.2.2.4 (non-confirmed)
MAPPING LUNAR LAVA TUBES FOR HUMAN HABITATION ASSESSMENT WITH SMALL ROBOTIC SWARMS
Charles Lauer, Rocketplane Global, Inc., United States

GLEX-2021.2.2.5
LUNAR COMMUNICATION AS A COMMERCIAL SERVICE TO ALL LUNAR MISSIONS - 1ST GENERATION RELAY-SATELLITE OPERATIONAL IN 2024

Nelly Offord (Phillips), Surrey Satellite Technology Ltd (SSTL), United Kingdom

GLEX-2021.2.2.6
LUNAR NAVIGATION USING A SMALL SATELLITE NETWORK
Shreya Sarkar, International Space University (ISU), France

GLEX-2021.2.2.7
IN-SITU NAVIGATION SYSTEM FOR PRECISION LUNAR LANDINGS
Christina Toldbo, Technical University of Denmark - National Space Institut (DTU Space), Denmark

GLEX-2021.2.2.8
INTERNATIONAL MOONBASE ALLIANCE CAMPAIGNS AT HI-SEAS
Michaela Musilova, International MoonBase Alliance, United States

GLEX-2021.2.2.9
POSSIBLE SCENARIOS OF MANNED LUNAR EXPLORATION BY RUSSIAN SPACECRAFT AT THE INITIAL STAGE AND PROPOSALS ON SPACECRAFT CONCEPTS TO SUPPORT MANNED MISSIONS AND CONDUCT RESEARCHES ON THE MOON AND FROM THE MOON
Konstantin Raykunov, Central Research Institute for Machine Building (JSC TSNIIMASH), Russian Federation

GLEX-2021.2.2.11
VIRTUAL REALITY TECHNOLOGIES FOR HUMAN LUNAR MISSIONS PREPARATION
Mariya Danilova, Central Research Institute for Machine Building (JSC TSNIIMASH), Russian Federation

GLEX-2021.2.2.12
LUNAR MARKET ASSESSMENT: MARKET TRENDS AND CHALLENGES IN THE DEVELOPMENT OF A LUNAR ECONOMY
Luigi Scatteia, PricewaterhouseCoopers Advisory (PwC), France

2.3. Lunar Exploration (3)

June 16 2021, 16:30 — Hall #1

Chair(s): Jan Kolar, Czech Space Office, Czech Republic;

GLEX-2021.2.3.2
MOONLIGHT INITIATIVE: CONNECTING EARTH WITH THE MOON
Bernhard Hufenbach, European Space Agency (ESA), The Netherlands

GLEX-2021.2.3.3
POSSIBLE SCENARIOS FOR USING MOBILE ROBOTIC TECHNIQUES TO SUPPORT MANNED LUNAR MISSIONS WITHIN THE FRAMEWORK OF THE RUSSIAN LUNAR EXPLORATION PROGRAM
Konstantin Raykunov, Central Research Institute for Machine Building (JSC TSNIIMASH), Russian Federation

GLEX-2021.2.3.4
SMALL ROBOTIC SWARM TECHNOLOGIES FOR LUNAR SURFACE EXPLORATION
Rod Mamin, Spacebit Global Ltd, United Kingdom

GLEX-2021.2.3.5
MOON VILLAGE ASSOCIATION CONTRIBUTION TO GLOBAL LUNAR EXPLORATION AND UTILISATION
Giuseppe Reibaldi, Moon Village Association (MVA), Austria

GLEX-2021.2.3.7
OHB INSTRUMENTS EVELOPMENT FOR VOLATILE SCOUTING ON THE MOON
Lutz Richter, OHB System AG - Munich, Germany

GLEX-2021.2.3.8 (non-confirmed)
Options of navigation systems for lunar exploration
Andrey Dmitriev, Lavochkin Association, Russian Federation

GLEX-2021.2.3.9
INSTRUMENTS TO STUDY ROCKET PLUME SURFACE INTERACTIONS (PSI) ON THE LUNAR SURFACE
Ariana Bueno, University of Michigan, Ann Arbor, United States

GLEX-2021.2.3.10 (non-confirmed)
PERSPECTIVES OF DUST AND DUSTY PLASMA OBSERVATIONS IN THE FUTURE LUNAR MISSIONS
Lev M. Zelenyi, Russian Academy of Sciences, Russian Federation

GLEX-2021.2.3.11
MOON GALLERY
Anna Sitnikova, ILEWG ExoGeoLab Team, The Netherlands

GLEX-2021.2.3.12
ON ESTIMATION OF ORBIT DETERMINATION ACCURACY DURING DESIGN AND SUPPORT OF ADVANCED LUNAR MISSIONS
Pavel Kozlov, Precision Systems and Instruments, Russian Federation

2.4. Lunar Exploration (4)

June 17 2021, 11:00 — Hall #1

Chair(s): Jan Kolar, Czech Space Office, Czech Republic;

GLEX-2021.2.4.1
THE COMPARISON OF POWER SYSTEM DESIGN AND ANALYSIS FOR TASKS OF UNMANNED LUNAR EXPLORATION AND MANNED LUNAR EXPLORATION
Ming Zhang, China Academy of Space Technology (CAST), China

GLEX-2021.2.4.2
THE ESA PROSPECT PAYLOAD FOR LUNA-27: DEVELOPMENT STATUS
Richard Fisackerly, European Space Agency (ESA), The Netherlands

GLEX-2021.2.4.4
RETURN OF A MANNED SPACECRAFT TO EARTH IN CASE OF A CONTINGENCY DURING A FLIGHT TO THE POLAR LUNAR ORBIT
Rafail Murtazin, Rocket Space Corporation Energia, Russian Federation

GLEX-2021.2.4.5
USING EXTENDED REALITY AS A DESIGN AND TRAINING TOOL FOR A FUTURE LUNAR HUMAN HABITAT: THE FLEX-XR CASE STUDY
Bastiaan Petermeijer, Netherlands Aerospace Centre (NLR), The Netherlands

GLEX-2021.2.4.6
PLANETARY LANDER FOR YIELDING EXPLORATION AND RANGING (PLAYER) - CONCEPT FOR A REUSABLE LUNAR LANDER FOR SHUTTLING PAYLOADS WITHIN CIS-LUNAR SPACE
Neelesh Ranjan Saxena, TU Berlin, Germany

GLEX-2021.2.4.8
SPACEPORT: HYBRID MODEL FOR BUILDING A LONG-TERM MOON COLONIZATION 547.5 B USD EARNING BEFORE TAX (EBT)
Adele Gammarano, International Space University (ISU), United Kingdom

GLEX-2021.2.4.9
TOWARDS THE MOON AND BEYOND: PREPARING FOR THE FUTURE OF CISLUNAR AND SOLAR SYSTEM EXPLORATION
Stéphanie Lizy-Destrez, Institut Supérieur de l'Aéronautique et de l'Espace (ISAE), France

2.5. Lunar Exploration (5)

June 17 2021, 15:30 — Hall #1

Chair(s): Jan Kolar , Czech Space Office, Czech Republic;

GLEX-2021.2.5.1
PHASING CONTROL OF RELAY SATELLITE AROUND EARTH-MOON LIBRATION POINT
Lei LIU, Beijing Aerospace Control Center (BACC), China

GLEX-2021.2.5.2
OPTIMAL CONTROL OF TRAJECTORY OF A REUSABLE LAUNCHER IN OPENMDAO/DYMOS
Alberto Fossà, Institut Supérieur de l'Aéronautique et de l'Espace (ISAE), France

GLEX-2021.2.5.3 (non-confirmed)
TURNING THE MOON INTO SWISS CHEESE: THE DANGERS OF LUNAR ORBITAL DEBRIS AND THE NEED FOR RESPONSIBLE MANAGEMENT NOW
Catrina Melograna, International Institute of Air and Space Law, Leiden University, United States

GLEX-2021.2.5.4
NUCLEAR REACTOR DESIGN FOR A SELF-SUSTAINING LUNAR ESTABLISHMENT OF 100 OCCUPANTS FOR 5 YEARS
Vikrant Sharma, University of Petroleum and Energy Studies, India

GLEX-2021.2.5.5
OPTIMIZATION OF TRANSFER TRAJECTORY TO LUNAR L2 LIBRATION POINT VIA A LUNAR SWING-BY
Lei LIU, Beijing Aerospace Control Center (BACC), China

GLEX-2021.2.5.6
SELENOCENTRIC ORBITS STABILIZATION BY ELECTRIC PROPULSION
Olga Starinova, Samara National Research University (Samara University), Russian Federation

GLEX-2021.2.5.7
TECHNICAL STUDY UPON THE CONCEPT OF ENERGY PRODUCTION NEAR LUNAR POLES BY MEANS OF MESHED NETWORK ARRANGEMENT OF THERMOELECTRIC GENERATORS
Neelesh Ranjan Saxena, TU Berlin, Germany

3. Mars Exploration

3.1. Mars Exploration (1)

June 16 2021, 11:00 — Hall #1

Chair(s): Oleg Orlov , Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation;

GLEX-2021.3.1.1 (non-confirmed)
EXOMARS TRACE GAS ORBITER MARS ATMOSPHERE AND GRAVITY SCIENCE EXPERIMENT SOC SUPPORT – STATUS UPDATE
Michela Munoz Fernandez, HE Space Operations, Spain

GLEX-2021.3.1.2
EXOMARS SCHIAPARELLI: NUMERICAL INTERPRETATION OF CONVECTIVE AND RADIATIVE HEATING FLIGHT DATA
Dmitry Yatsukhno, Ishlinsky Institute for Problems in Mechanics of the Russian Academy of Sciences, Russian Federation

GLEX-2021.3.1.3
A ROBUST FILTER METHOD FOR DYNAMIC PRESSURE MEASUREMENT AIDED NAVIGATION FOR MARS ENTRY
Jianfeng Deng, Shanghai Jiao Tong University, China

GLEX-2021.3.1.4
EVOLUTION OF THE EXOMARS SAMPLE CRUSHING UNIT FROM BREADBOARD TO FLIGHT MODEL
Daniel Redlich, OHB System AG, Germany

GLEX-2021.3.1.5
CHALLENGES OF THE MMX ROVER MISSION TO PHOBOS
Frans IJpelaan, Centre National d'Etudes Spatiales (CNES), France

GLEX-2021.3.1.6
DATA-DRIVEN MODELLING OF ORBITAL ENVIRONMENT AROUND PHOBOS
Yuying Liang, ISAS, JAXA, China

GLEX-2021.3.1.8
CAN AN AIRSHIP EXPLORE MARS ?
Alice Barthe, , Switzerland

GLEX-2021.3.1.9
BENCHMARKING STUDY OF A MONTE CARLO BASED METHODOLOGY FOR THE EVALUATION OF SHIELDING EFFICIENCY AGAINST GCR AND SPE IN DEEP SPACE.
Joris Gackowski, Engie Benelux, Belgium

GLEX-2021.3.1.11
AUREA REGIO - AN ENGINEERING AND DESIGN VISION FOR HUMAN LIFE ON MARS
Yulia Akisheva, Institut Supérieur de l'Aéronautique et de l'Espace (ISAE), France

3.2. Mars Exploration (2)

June 16 2021, 14:00 — Hall #1

Chair(s): Fritz Merkle , OHB System AG-Bremen, Germany;

GLEX-2021.3.2.1 (non-confirmed)
FRIEND NEUTRON TELESCOPE ONBOARD EXOMARS TGO: MAPPING OF SHALLOW SUBSURFACE WATER AT MARS MODERATE LATITUDES
Igor Mitrofanov, Institute for Space Research, Russian Federation

GLEX-2021.3.2.2
FLIGHT-MODEL TEST RESULTS OF THE SAMPLE HANDLING SYSTEM IN THE EXOMARS ROSALIND FRANKLIN ROVER
Robert Paul, OHB System AG, Germany

GLEX-2021.3.2.3
GUIDANCE AND MISSION PROGRAMMING OF MMX INFRARED SPECTROMETER (MIRS) FOR THE EXPLORATION OF MARS AND ITS MOONS
Eric Sawyer, Centre National d'Etudes Spatiales (CNES), France

GLEX-2021.3.2.5
COMPARISION OF AIR-LAUNCHED REUSABLE SYSTEM VS GROUND-LAUNCHED SYSTEM FOR MARS SAMPLE RETURN
Chiranthan K, Ramaiah Institute of Technology, India

GLEX-2021.3.2.6
HUMAN FLYBY OF MARS IN 2033
Matthew Duggan, The Boeing Company, United States

GLEX-2021.3.2.7
MANNED MARS EXPLORATION PLAN BASED ON MULTI-PROPULSION SCHEME
LIU HUAN, China Academy of Space Technology (CAST), China

GLEX-2021.3.2.8
MARS SCIENCE CITY – ENVISIONING A SETTLEMENT ON THE RED PLANET
Sandra Haeuplik-Meusburger, Vienna University of Technology, Austria

GLEX-2021.3.2.9 (non-confirmed)
LANDING SITE MAPPING FOR CHINA'S TIANWEN-1 MISSION
Jia Wang, 1) Science and technology on aerospace flight dynamics laboratory, Beijing, China; 2) Beijing aerospace control center, Beijing, China;, China

GLEX-2021.3.2.10
HABITAT EXTENSIBILITY TO THE LUNAR SURFACE AND MARS
Matthew Duggan, The Boeing Company, United States

GLEX-2021.3.2.11
EXTRATERRESTRIAL ARCHITECTURE ON MARS
Marc Northstar, Marc Northstar Studio, United States

GLEX-2021.3.2.12
MARS EXPLORATION LEGAL FRAMEWORK, AN OPPORTUNITY FOR SPACE RESOURCES PRESERVATION MODELLED BY THE MOON AGREEMENT'S LEARNINGS
Sara Toffoletti, , France

3.3. Mars Exploration (3)

June 16 2021, 16:30 — Hall #14

Chair(s): Oleg Orlov , Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation;

GLEX-2021.3.3.2
OPTIMAL CONTINUOUS-THRUST, CONSTANT ACCELERATION ORBIT TRANSFER FROM EARTH TO MARS IN THE FOUR-BODY PROBLEM SCENARIO
Mehdi Lali, Purdue University, United States

GLEX-2021.3.3.3
OPTIMAL GUIDANCE USING TEMPORAL CONVOLUTIONAL NETWORKS FOR AUTONOMOUS MARS LANDING
Swaroop Damodaran, PES University, India

GLEX-2021.3.3.5
PRODUCING WHEAT ON MARS
Julio Rezende, Federal University of Rio Grande do Norte (UFRN), Brazil

GLEX-2021.3.3.6
RESEARCH & DEVELOPMENT OF NEW CONCEPT OF ENERGY SUPPLY SYSTEM APPLIED TO MARS(ENERGY FROM SPACE)
Riyabrata Mondal, TU Bergakademie Freiberg (TUBAF), Germany

GLEX-2021.3.3.7
RESEARCH ON COOPERATIVE NAVIGATION FOR THE LONG-RANGE ROVER LOCALIZATION ON MARS
LIAO LIU, Shenzhen Aerospace Dongfanghong HIT Satellite.Ltd, China

GLEX-2021.3.3.11
SLV2 MARS ROVER
Shivam Mathur, , United Arab Emirates

GLEX-2021.3.3.12
HUMANS TO MARS: BY MARS- PLUS EUROPA-INPPS FLAGSHIP MISSION
Frank Jansen, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

3.4. Mars Exploration (4)

June 17 2021, 15:30 — Hall of Library

Chair(s): Julie Patarin-Jossec , Russian Academy of Sciences, Russian Federation;

GLEX-2021.3.4.1
THE NASA SPACE LAUNCH SYSTEM (SLS) CAPABILITIES FOR THE 2033 CREWED MARS FLYBY MISSION
Benjamin Donahue, The Boeing Company, United States

GLEX-2021.3.4.2
THE EXOMARS ROVER MISSION MANAGEMENT SOFTWARE FOR OPERATIONS PLANNING ON MARS
LAURA BOI, Thales Alenia Space Italia, Italy

GLEX-2021.3.4.3
SCIENTIFIC OBJECTIVES OF THE MMX ROVER MISSION TO PHOBOS
Stephan Ulamec, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

GLEX-2021.3.4.6
UTTAR-"AN EMPOWERED LANDING INSTRUMENT"
Krishna Dev Rathi, R.V.College of Engineering, India

GLEX-2021.3.4.7
SUBSURFACE EXPLORATION ON MARS AND MOON WITH A ROBOTIC SWARM
Ban-Sok Shin, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

GLEX-2021.3.4.8
SPACE BOOT CAMP
ISAAC GATHU, Kenya Space Agency (KSA), Kenya

4. Exploration of Near Earth Asteroids

4.1. Exploration of Near-Earth Asteroids (1)

June 16 2021, 16:30 — Hall #16

Chair(s): Fritz Merkle , OHB System AG-Bremen, Germany;

GLEX-2021.4.1.1
AN APPROACH TO STUDY NEAR-EARTH ASTEROIDS BY AN OPERATING SPACECRAFT AFTER THE COMPLETION OF ITS MAIN MISSION
Maxim Pupkov, Bauman Moscow State Technical University, Russian Federation

GLEX-2021.4.1.2 (non-confirmed)
APOPHIS RENDEZVOUS MISSION FOR SCIENTIFIC INVESTIGATION AND PLANETARY DEFENSE
Hong-Kyu Moon, Korea Astronomy and Space Science Institute, Korea, Republic of

GLEX-2021.4.1.3
DOUBLE ASTEROID REDIRECTION TEST: FIRST PLANETARY DEFENSE MISSION
Andy Cheng, The John Hopkins University Applied Physics Laboratory, United States

GLEX-2021.4.1.4
THE ESA HERA MISSION TO THE NEAR-EARTH ASTEROID BINARY DIDYMOS: PLANETARY DEFENSE AND SCIENCE RETURN
Patrick Michel, University of Nice-Sophia Antipolis, CNRS, Observatoire de la Cote d'Azur, France

GLEX-2021.4.1.5
HERA – EUROPE'S CONTRIBUTION TO ASTEROID DEFENCE
Anders Svedevall, OHB System AG, Germany

GLEX-2021.4.1.6
THE MEASUREMENT GOALS AND PAYLOAD OF THE HERA MISSION TO DIMORPHOS
Michael Küppers, European Space Agency (ESA), Spain

GLEX-2021.4.1.7
SOLAR SAILS ASTEROID GRAND TOUR COOPETITION
Jean-Yves Prado, PLATINEO, France

4.2. Exploration of Near-Earth Asteroids (2)

June 16 2021, 11:00 — Hall #16

Chair(s): Fritz Merkle , OHB System AG-Bremen, Germany;

GLEX-2021.4.2.1
MAPPING ASTEROIDS FOR VALUABLE MINERALS AND PLANETARY DEFENSE USING COST-EFFECTIVE CUBESATS
Camilo Andres Reyes Mantilla, Julius Maximilians Universität Würzburg, Germany

GLEX-2021.4.2.2
NEAR-EARTH OBJECTS (NEO) 2030; FORECASTING THE FUTURE OF NEO STUDIES AND YOUTH INVOLVEMENT FOR SUSTAINABLE DEVELOPMENT GOALS (SDGS)
Smiriti Srivastava, Space Generation Advisory Council (SGAC), India

GLEX-2021.4.2.3
PREVENTION OF NEO HAZARD: THE RUSSIAN APPROACH
Elena Pavlova, Keldysh Institute of Applied Mathematics of RAS, Russian Federation

GLEX-2021.4.2.6
MINING OF NEAR-EARTH ASTEROIDS AND EXPLORING THEM FOR FUTURE HUMAN SPACE MISSIONS
Zafera Amtul Khader, , India

GLEX-2021.4.2.7 (non-confirmed)
NEAR-EARTH ASTEROID EXPLOITATION: LEGAL ISSUES AND THE WAY FORWARD
Sandeepa Bhat, National University of Juridical Sciences, India

5. Exploration of Other Destinations

5.1. Exploration of Other Destinations (1)

June 17 2021, 11:00 — Hall #14

Co-Chair(s): Chris Welch , International Space University (ISU), France; Oleg Orlov , Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation;

GLEX-2021.5.1.1
DESIGN FEATURES AND ADVANTAGES OF A MANEUVERABLE LANDER TO VENUS
Anastasia Kosenkova, Lavochkin Association, Russian Federation

GLEX-2021.5.1.3
GLOBAL DIMENSIONING OF A NEAR-TERM MANNED MISSION IN THE ATMOSPHERE OF VENUS
Thibaut POUGET, Federation Open Space Makers, France

GLEX-2021.5.1.4 (non-confirmed)
EVALUATION OF ITERATIVE ANALYTICAL TECHNIQUES FOR THE TRAJECTORY DESIGN OF A DIRECT JUPITER ORBITER MISSION
Dr. Parvathi S P, Indian Institute of Space Science and Technology (IIST), India

GLEX-2021.5.1.5
ACCESSIBLE LANDING AREAS ON THE SURFACE OF GANYMEDE: DEFINING AND ASSESSING THE OPPORTUNITY TO REACH THEM
Andrey Belyaev, Space Research Institute (IKI), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.5.1.6
AN L-CLASS MULTIROLE OBSERVATORY AND SCIENCE PLATFORM FOR NEPTUNE
James E. McKevitt, University of Vienna, Austria

GLEX-2021.5.1.7
FLIGHT TRAJECTORIES DESIGN USING GRAVITY ASSIST MANEUVERS TO THE TRANS-NEPTUNIAN OBJECT (90377) SEDNA
Vladislav Zubko, Space Research Institute (IKI), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.5.1.8 (non-confirmed)
AN ECONOMIC ANALYSIS OF NEAR-TERM SELF-REPLICATING PROBES FOR SPACE EXPLORATION
Olivia Borgue, Initiative for Interstellar Studies, United Kingdom

GLEX-2021.5.1.9
A MICRO BIOSPHERE FOR LONG-DURATION SPACE TRAVEL
Jean-Luc Siméon, SIMEON Technologies, France

GLEX-2021.5.1.10 (non-confirmed)
CASE STUDY OF AN INTERSTELLAR MISSION: UNMANNED INTERSTELLAR PROBE USING GAS CORE NUCLEAR REACTORS WITH EARLY 21ST CENTURY TECHNOLOGY
Ugur Guven, UN CSSTEAP, United States

GLEX-2021.5.1.11
FEASIBILITY STUDY OF AN INTERSTELLAR TRAVEL MISSION TO SIRIUS B STAR BY AN UNMANNED PROBE EMPLOYING NUCLEAR PROPULSION TECHNOLOGY
Kirti Vishwakarma, University of Petroleum and Energy Studies, India

GLEX-2021.5.1.12
ANALYSIS OF KEPLER AND TESS EXOPLANET TRANSITS USING PYTHON FOR POTENTIAL FUTURE SPACE EXPLORATION
Asia Bulgarini, Queen Mary University of London, United Kingdom

5.2. Exploration of Other Destinations (2)

June 17 2021, 15:30 — Hall #20

Co-Chair(s): Oleg Orlov, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation; Bernard Foing, ILEWG "EuroMoonMars", The Netherlands;

GLEX-2021.5.2.1
GRAVITY ASSISTS MANEUVER IN THE PROBLEM OF EXTENSION ACCESSIBLE LANDING AREAS ON THE VENUS SURFACE
Natan Eismont, Space Research Institute (IKI), RAS, Russian Federation

GLEX-2021.5.2.2
VENUS LANDING MODULE(VLM)
Dhanush Salunke, India

GLEX-2021.5.2.3
TRIDENT: A MISSION STUDY FOR CONSTRUCTION, DEPLOYMENT, AND OPERATION OF AN AERIAL PLATFORM FOR SUSTAINED HUMAN PRESENCE ON VENUS
Matej Poliacek, Deutsch Luft und Raumfahrt Zentrum (DLR), Slovak Republic

GLEX-2021.5.2.4
SPORTS COMMERCIAL PILOTED EXPEDITIONS TO MARS, VENUS, MERCURY AND OTHER PLANETS AND THEIR SATELLITES.
Oleg Aleksandrov, Private individual www.oleg.space, United States

GLEX-2021.5.2.5 (non-confirmed)
TWO FLIGHTS ON ELLIPTICAL ORBITS: TO THE ASTEROID BELT AND TO THE SUN
Nikolay Ostrovskiy, Russian Federation

GLEX-2021.5.2.8
OPTIMISATION OF A HYDRODYNAMIC SPH-FEM MODEL FOR A BIOINSPIRED AERIAL-AQUATIC SPACECRAFT ON TITAN
James E. McKevitt, University of Vienna, Austria

GLEX-2021.5.2.9
GRAVITATIONAL WAVES FOR MEASURING HUBBLE'S CONSTANT IN THE ACCELERATING UNIVERSE
RAJESH KUMAR DUBEY, Lovely Professional University, India

6. Space Transportation

6.1. Space Transportation (1)

June 16 2021, 11:00 — Hall #9

Chair(s): Bernard Foing , ILEWG "EuroMoonMars", The Netherlands;

GLEX-2021.6.1.1
KEYNOTE: HUMAN SPACEFLIGHT FROM GUIANA SPACE CENTER
Christophe Bonnal, Centre National d'Etudes Spatiales (CNES), France

GLEX-2021.6.1.2
ADVANCED CAPABILITIES OF A LEGENDARY ROCKET SOYUZ-2.
Mila Savelyeva, GK Launch Services, JSC, Russian Federation

GLEX-2021.6.1.4 (non-confirmed)
CONCEPT OF A SHORTCUT CREATION OF MULTIPURPOSE ORBITAL TRANSPORT MODULE BASED ON KM-10 HALL-EFFECT THRUSTER
Nikolai Arkhangelski, Keldych Research Centre, Russian Federation

GLEX-2021.6.1.5
EXPLORATION OF THE SOLAR SYSTEM AND BEYOND USING A THERMONUCLEAR FUSION DRIVE
Roman Ya. Kezerashvili, New York City College of Technology, The City University of New York, United States

GLEX-2021.6.1.6
DEVELOPMENT AND PROSPECTS OF THE D-START SIMPLEST FEMTO-CLASS SPACECRAFTS WITH EXTERNAL ENERGY SOURCES (INCLUDING THE POSSIBILITY OF USING SPACE DEBRIS)
Dmitry Novoseltsev, Russian Federation

GLEX-2021.6.1.7
DEVELOPMENT STATUS OF EXPERIMENTAL WINGED ROCKET WIRES#015 AND ITS FLIGHT DEMONSTRATION PLAN AT ESRANGE OF SWEDEN IN COOPERATION WITH UNIVERSITY, AGENCY, INDUSTIES AND INTERNATIONAL PARTNERSHIP
Koichi Yonemoto, Tokyo University of Science, Japan

GLEX-2021.6.1.8
FLAMENCO: AN INNOVATIVE REUSABLE LAUNCH SYSTEM FOR EFFICIENT ACCESS AND RETURN FROM SPACE
Iñigo Muñoz Elorza, Spanish-Ukrainian Aerospace Team (SUAT), Germany

GLEX-2021.6.1.9
GRAVITY WELL PUMP
Martin Kolar, Brno University of Technology, Czech Republic

GLEX-2021.6.1.11
REPORT ON RETRO-ROCKET/BRAKING SOLID ROCKET MOTOR DEVELOPMENT
Florin Mingireanu, Romanian Space Agency (ROSA), Romania

6.2. Space Transportation (2)

June 16 2021, 16:30 — Hall #9

Chair(s): Kevin D. Foley, The Boeing Company, United States;

GLEX-2021.6.2.1
KEYNOTE: MODERN TRENDS OF SPACECRAFT POWER-AND-PROPULSION SYSTEMS
Alexander Semenkin, Central Research Institute for Machine Building (JSC TSNIIMASH), Russian Federation

GLEX-2021.6.2.2
INVESTIGATION OF LIQUID OXYGEN PRESSURIZATION SYSTEM WITH COLD GAS HELIUM AND HYDROGEN PEROXIDE
Valeriy Trushlyakov, Omsk State Technical University, Russian Federation

GLEX-2021.6.2.3
RD171MV LIQUID ROCKET ENGINE - TRANSITION TO DIGITAL DESIGN
Vladimir Sudakov, JSC NPO Energomash, Russian Federation

GLEX-2021.6.2.5
STUDYING THE EFFECT OF REUSABILITY ON THE PERFORMANCE OF AN LPE
Mahyar Naderi, K.N.Toosi uinversity of technology, Iran

GLEX-2021.6.2.6
THE RING AN OPTIMIZED SPACESHIP FOR THE 21ST CENTURY
Giorgio Gaviraghi, Unispace Exponential Creativity, Italy

GLEX-2021.6.2.7
THERMIONIC EMISSION METHODS FOR COOLING THE HEAT SHIELDS OF REENTRY VEHICLES IN THE INTERESTS OF STUDYING THE PLANETS OF THE SOLAR SYSTEM WITH AN ATMOSPHERE
Aleksey Kolychev, Russian Federation

GLEX-2021.6.2.8
SUBORBITAL SPACE FLIGHTS: SHOULD WE EXPECT A REVOLUTION IN LONG-HAUL AIR CARGOS?
Nikita Kazinskiy, JSC Agat, Russian Federation

7. Key Technologies

7.1. Key Technologies (1)

June 15 2021, 15:30 — Hall #20

Chair(s): Igor V. Sorokin, S.P. Korolev Rocket and Space Corporation Energia, Russian Federation;

GLEX-2021.7.1.1
A PARTICLE FILTER APPROACH FOR FAULT DETECTION AND ISOLATION OF ROVER IMU SENSORS
Vito Antonio Nardi, University Mediterranea of Reggio Calabria, Italy

GLEX-2021.7.1.2
ANALYSIS OF DYNAMIC CHARACTERISTICS AND RESEARCH ON COPING STRATEGY IN MARTIAN PARACHUTE DESCENT PHASE
Jie Dong, China Academy of Space Technology (CAST), China

GLEX-2021.7.1.3
EFFECT OF ADJUNCT HEAT SOURCES AND HEAT SINKS ON SPACECRAFT PERFORMANCE
Vinayak Malhotra, SRM University Chennai, India

GLEX-2021.7.1.4
APPLICATION OF PARALLEL MECHANISMS FOR DIRECTING AND ORIENTING OF SPACECRAFTS ONBOARD EQUIPMENT
Aleksei Kiselev, Baltic State Technical University VOENMEH, Russian Federation

GLEX-2021.7.1.5
ATTITUDE CONTROL OF A FAST-RETARGETING AGILE NANOSATELLITE USING NEURAL NETWORK BASED STEERING FOR VARIABLE SPEED CONTROL MOMENT GYROSCOPES
Siddharth Nimbajirao Deore, Sapienza University of Rome, Italy

GLEX-2021.7.1.6
DATASAT – GROUND STATION NETWORK FOR TRACKING, TELEMETRY AND COMMAND OF SPACECRAFTS
SERGIO SOARES, Brazil

GLEX-2021.7.1.7
ADDICTIVE MANUFACTURING OF SPACE STRUCTURES ON VACUUM USING THE LASER METAL DEPOSITION LMD TECHNIQUE BASED ON THE ADDITION OF METAL WIRE
Borja Pozo, IK4-TEKNIKER, Spain

GLEX-2021.7.1.8
A CUBESAT PLATFORM FOR MONITORING SPACE WEATHER
Benjamin Purvis, BLUECUBE Aerospace, United States

GLEX-2021.7.1.9
A SIMPLE CONFIGURATION SYSTEM FOR PLUG AND PLAY CUBESAT OBSW DEVELOPMENT.
Ignaty Romanov-Chernigovsky, Space Products and Innovation, Germany

GLEX-2021.7.1.10
BAYESIAN INFERENCE FOR DEPLOYABLE SATELLITE CONFIGURATION PREDICTION
Keenan Albee, Massachusetts Institute of Technology (MIT), United States

GLEX-2021.7.1.11
ANALYSIS OF KEY TECHNOLOGIES USED FOR DEVELOPMENT MULTI-SATELLITE ORBITAL GROUPINGS BASED ON SMALL SATELLITES
Ivan Tkachenko, Samara National Research University (Samara University), Russian Federation

GLEX-2021.7.1.13 (non-confirmed)
ADVANCED STIRLING RADIOACTIVE GENERATOR- THE FUTURISTIC POWER GENERATOR
Adarsh Chandra, R.V.College of Engineering, India

GLEX-2021.7.1.14
CALIBRATION OF MAGNETIC FIELD SENSOR DATA USING FLIGHT RESULTS
Withanage Dulani Chamika, Kyushu Institute of Technology, Japan

GLEX-2021.7.1.15 (non-confirmed)
COORDINATED GROUND SYSTEM FOR JOINT SCIENCE OPERATIONS FOR THE EXOMARS MISSION.
Vladimir Nazarov, Space Research Institute (IKI), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.7.1.16
ASTER: DEVELOPING A HIGH PERFORMANCE ATTITUDE CONTROLLED PLATFORM FOR LOW-COST EXPERIMENTS
Jonathan Lange, Luleå University of Technology, Sweden

GLEX-2021.7.1.17
DELINEATION OF AN EFFICACIOUS POWER SYSTEM OF A NANO SATELLITE
Onkar Bhakare, College of Engineering, Pune, India

7.2. Key Technologies (2)

June 16 2021, 11:00 — Hall #20

Chair(s): Igor V. Sorokin, S.P. Korolev Rocket and Space Corporation Energia, Russian Federation;

GLEX-2021.7.2.1
KEY TECHNOLOGIES FOR SPACE EXPLORATION DEVELOPED AT TU DRESDEN
Christian Bach, Dresden University of Technology (DUT) / Technische Universität Dresden, Germany

GLEX-2021.7.2.3
FLIPSAT-1: OPTIMIZING RADIATION HARDENING FOR A SPACE ENVIRONMENT
Theodore Ouyang, BLUECUBE Aerospace, United States

GLEX-2021.7.2.4 (non-confirmed)
HIGH-FIDELITY MODELING OF ORBITAL DEBRIS IMPACT ON OPEN CELL FOAM CORE SANDWICH PANELS
Aleksandr Cherniaev, University of Windsor, Canada

GLEX-2021.7.2.6
EVALUATING THE EFFICACY OF ELECTRIC FIELDS IN MITIGATING LUNAR DUST BUILDUP ON SPACECRAFT SURFACES
Caeden Dooner, BLUECUBE Aerospace, United States

GLEX-2021.7.2.8
LAUNCHING THE FIRST HIGH-ALTITUDE BALLOON IN ZIMBABWE: THE ROLE OF STUDENT-LED INITIATIVES IN SPACE ECOSYSTEM DEVELOPMENT
Ruvimbo Samanga, Space Generation Advisory Council (SGAC), South Africa

GLEX-2021.7.2.10
EXPERIENCE IN DEVELOPMENT OF LONG LIFETIME ELECTRIC PUMP UNITS FOR SPACECRAFT THERMAL CONTROL SYSTEMS
Oleg Shirobokov, Baltic State Technical University VOENMEH, Russian Federation

GLEX-2021.7.2.11
DESIGN AND DEVELOP ADVANCED VISION SYSTEMS
Sandhya Rao, India

7.3. Key Technologies (3)

June 16 2021, 16:30 — Hall #20

Chair(s): Igor V. Sorokin, S.P. Korolev Rocket and Space Corporation Energia, Russian Federation;

GLEX-2021.7.3.1
MINIATURISED VISION SYSTEM FOR SPACE EXPLORATION
Wissam Mouallem, France

GLEX-2021.7.3.2
NEW HORIZONS FOR EXPLORATION VIA FLEXIBLE CONCEPTS BASED ON BUILDING BLOCKS USING THE STANDARDIZED ISSI (INTELLIGENT SPACE SYSTEM INTERFACE) MODULAR COUPLING KIT BY IBOSS
Thomas A. Schervan, iBOSS GmbH, Germany

GLEX-2021.7.3.3
LA-MOON BY JPL'S I2F 2020 TEAM LUNAR ASSET MESSAGING AND ON ORBIT NAVIGATION
Chrishma Singh-Derewa, United States

GLEX-2021.7.3.4
IN-FLIGHT RESEARCH OF CRYOCONDENSATION AND OUTGASSING OF THIN FILMS ON THE ELEMENTS OF INSTRUMENT DEEP-COOLED DETECTORS
Dmitry Monakhov, SSC Keldysh Research Centre, Russian Federation

GLEX-2021.7.3.5
THE EXPLOITATION OF THE IRENE TPS TECHNOLOGY FOR RE-ENTRY MISSIONS.
Francesco Punzo, ALI S.c.a.r.l., Italy

GLEX-2021.7.3.7 (non-confirmed)
USAGE OF NUCLEAR POWER AS AN ENERGY SOURCE FOR SPACE STATIONS AND SPACE HABITATS
Ugur Guven, UN CSSTEAP, United States

GLEX-2021.7.3.8
WIRELESS TRANSFER OF ENERGY AND INFORMATION. SHAPE CONTROL OF LARGE STRUCTURES
S.A. Matveev, Baltic State Technical University VOENMEH, Russian Federation

GLEX-2021.7.3.9
WIRELESSLY POWERING SATELLITES USING LASER EMITTER
Aditya Baraskar, Kyushu University, Japan

7.4. Key Technologies (4)

June 17 2021, 11:00 — Hall #20

Chair(s): Pierre-Alexis Joumel, Airbus Defence and Space, Germany;

GLEX-2021.7.4.1
KEYNOTE: SMALL PROBES FOR DEEP SPACE EXPLORATION
Pierre W. Bousquet, Centre National d'Etudes Spatiales (CNES), France

GLEX-2021.7.4.2
REGENERATIVE FUEL CELL SYSTEM FOR LUNAR NIGHT SURVIVAL
Pascal Barbier, Air Liquide, France

GLEX-2021.7.4.3
TASKS OF PROFESSIONAL ACTIVITIES OF COSMONAUTS ON THE MOON AND IN DEEP SPACE: WORKING OUT METHODS AND TECHNOLOGIES
Maksim Kharlamov, Gagarin Cosmonaut Training Center, Russian Federation

GLEX-2021.7.4.4
TUBE-BASED ROBUST MODEL PREDICTIVE CONTROL FOR ASTEROID SOFT LANDING.
Thomas Frekhaug, Universidad Carlos III de Madrid, Spain

GLEX-2021.7.4.5
NANOFLUID BASED ACTIVE THERMAL CONTROL SYSTEM FOR SPACECRAFTS
Anshoo Mehra, Tod'Aers, India

GLEX-2021.7.4.6
SATELLITE COMMUNICATIONS IN IOT NETWORKS
Pavel Cherenkov, Gonets Satellite System, Russian Federation

GLEX-2021.7.4.7 (non-confirmed)
PROSPECTIVE OF THE COMPUTATIONAL THREE-DIMENSIONAL RADIATIVE AEROTHERMODYNAMICS FOR PREDICTION OF THE HEAT PROTECTION SYSTEM OF RETURN SPACE VEHICLES
Sergey Surzhikov, Institute for Problems in Mechanics of Russian Academy of Sciences, Russian Federation

GLEX-2021.7.4.8
EMERGING TECHNOLOGIES AND SPACE: THE OPPORTUNITIES AND RISKS OF THE FOURTH INDUSTRIAL REVOLUTION
Antonio Carlo, Tallinn University of Technology, Estonia

GLEX-2021.7.4.9
INTERPLANETARY MARKET INTELLIGENCE AND PRIVATE CLAIMS IN SPACE WITH CUBESAT CONSTELLATION
Eric Ward, Berkelyn, United States

7.5. Key Technologies (5)

June 17 2021, 15:30 — Hall #16

Chair(s): Pierre-Alexis Joumel, Airbus Defence and Space, Germany;

GLEX-2021.7.5.1
SPACE READINESS LEVEL A PARAMETER TO HELP TO INTRODUCE TRADITIONAL COMPANY IN SPACE ECONOMY
Antonio Del Mastro, Mars Planet, Italy

GLEX-2021.7.5.2
SCIENCE GOALS AND SPACECRAFT PAYLOAD FOR LOW-ORBIT CONSTELLATIONS FOR REMOTE SENSING
Oleg Mansurov, Russian Federation

GLEX-2021.7.5.3
ON THE PARALLELIZATION OF VELOCITY VECTORS FOR SAFE ORBIT MANEUVERS IN SATELLITE FORMATION FLYING
Sergiu-Ştefan Mihai, Romanian InSpace Engineering SRL, Romania

GLEX-2021.7.5.4
MODELING AND CONTROL OF TENTACLE LIKE MULTI-LINK MANIPULATOR FOR ACTIVE DEBRIS REMOVAL (ADR) NANOSATELLITE MISSION.
Siddharth Nimbajirao Deore, Sapienza University of Rome, Italy

GLEX-2021.7.5.5 (non-confirmed)
INVESTIGATION OF THE PARAMETERS OF NEW MAPD-3NM SILICON PHOTOMULTIPLIERS
Farid Ahmadov, Azerbaijan National Academy of Sciences, Azerbaijan

GLEX-2021.7.5.6
CONTROL OF THE ROTATING TETHERED SYSTEM FOR ORBITAL DEBRIS REMOVAL
Valeriy Trushlyakov, Omsk State Technical University, Russian Federation

GLEX-2021.7.5.7
IMPLEMENTATION OF A DETERMINISTIC WIRELESS BUS FOR INTRA-SPACECRAFT COMMUNICATIONS USING THE ISA100 WIRELESS PROTOCOL
Ovidiu Ratiu, Romania

GLEX-2021.7.5.9
ON THE COUPLING OF THERMOACCOUSTIC WITH EXTERNAL HEAT SOURCE(S) AND RESULTANT PROPULSIVE FIRES
Vinayak Malhotra, SRM University Chennai, India

8. Challenges of Life Support/Medical Support for Human Missions

8.1. Challenges of Life Support/Medical Support for Human Missions (1)

June 15 2021, 15:30 — Hall #9

Chair(s): Elena Fomina, State Scientific Center of Russian Federation, Institute of Biomedical Problems, Russian Academy of Sciences, Russian Federation;

GLEX-2021.8.1.1
KEYNOTE: SEEMINGLY DIFFERENT IMPACT OF SPACEFLIGHT ON NASA, ESA AND ROSCOSMOS SPACE CREW REGARDING THE PERIVASCULAR SPACE
Floris Wuyts, University of Antwerp, Belgium

GLEX-2021.8.1.2
LONG-DURATION EXPLORATION MISSIONS: IMPACT OF CULTURALLY INFLUENCED COMMUNICATION PREFERENCES ON PSYCHOLOGICAL SUPPORT OF INTERNATIONAL CREWS
Elena Feichtinger, International Astronautical Federation (IAF), France

GLEX-2021.8.1.3
STUDY OF METABOLISM MARKERS AND BODY COMPOSITION PARAMETERS IN A 120-DAY ISOLATION IN A HERMETICALLY CLOSED CHAMBER (SIRIUS-19)
Kirill Gordienko, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.8.1.4
IL-8 PRODUCTION IS INCREASING IN MESENCHYMAL STROMAL CELLS DURING 10-DAYS OF SIMULATED MICROGRAVITY
Ivan Zhivodernikov, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.8.1.5
ACUTE PHASE RESPONSE IN ADAPTATION TO ALTERNATING GRAVITATIONAL ENVIRONMENTS
Olga Larina, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.8.1.6
STUDIES OF HUMAN HEMODYNAMICS IN A REDUCED MAGNETIC FIELD
Elena Luchitskaya, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.8.1.7
INTEGRAL ASSESSMENTS OF COSMONAUTS ' HEALTH IN THE LONG-TERM PERIOD OF PROFESSIONAL ACTIVITY
Igor Ushakov, Russian Federation

GLEX-2021.8.1.8
OPTIMIZATION OF VENTILATION AND CHEST COMPRESSION FOR SPACESUIT DESIGN
Peter Anto Johnson, University of Alberta, Canada

GLEX-2021.8.1.9
FMRI STUDIES FOR ASTRONAUT CO2 EXPOSURE TRAINING
John Christy Johnson, University of Alberta, Canada

GLEX-2021.8.1.10
AN EVALUATION OF DIFFERENT EXERCISE COUNTERMEASURES TO PREVENT MUSCULOSKELETAL DECONDITIONING IN ANALOGUE ASTRONAUTS DURING LONG-TERM BED-REST
Carmen Traseira Pedraz, Imperial College London, United Kingdom

GLEX-2021.8.1.11
Synbiotic for space travelers
VIACHESLAV ILYIN, INSTITUTE OF BIOMEDICAL PROBLEMS (IBMP), RUSSIAN ACADEMY OF SCIENCES (RAS), RUSSIAN FEDERATION

GLEX-2021.8.1.12
NEUTRAL-BUOYANCY TESTS OF THE ADVANCED CREW MEDICAL RESTRAINT FOR COMMERCIAL HUMAN SPACEFLIGHT
Matt Harasymczuk, Analog Astronaut Training Center, Poland

GLEX-2021.8.1.13
HYGIENE WATER PROCESSING DURING LONG-TERM MANNED SPACE MISSIONS
Nikolay Salnikov, NIICHIMMASH, Russian Federation

GLEX-2021.8.1.16
SPACEBAKERY – A CLOSED ECOLOGICAL PLANT CULTIVATION SYSTEM AND BAKERY FOR EXTENDED STAYS ON PLANET MARS AND THEIR APPLICATIONS FOR PLANET EARTH
Lucie Beckers, Belgium

GLEX-2021.8.1.18
ASTRONAUTS, HEAL THYSELF
Deepasree Bangaru-Raju, UK NHS Trust, United Kingdom

8.2. Challenges of Life Support/Medical Support for Human Missions (2)

June 16 2021, 14:00 — Hall #9

Chair(s): Elena Fomina, State Scientific Center of Russian Federation, Institute of Biomedical Problems, Russian Academy of Sciences, Russian Federation;

GLEX-2021.8.2.2
AN INTERNATIONAL SPACE STATION (ISS) TECHNOLOGY DEMONSTRATION EXPERIMENT TO ADDRESS MEDICAL SUPPORT CHALLENGES WITH ASTRONAUT EYE MONITORING
Scott Ritter, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

GLEX-2021.8.2.3
PARACRINE ACTIVITY OF MESENCHYMAL STEM CELLS UNDER SIMULATED MICROGRAVITY
Andrey Ratushnyy, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.8.2.4
EFFECTS OF SUNLIGHT SIMULATOR LIGHTING SYSTEM ON SEROTONIN, MELATONIN AND PHYSIOLOGICAL PARAMETERS RELATED WITH CIRCADIAN CLOCK OF THE ANALOG ASTRONAUT CREWS PERFORMING SIMULATION OF SPACE MISSION IN THE AATC HABITAT IN POLAND.
Agata Kolodziejczyk, Analog Astronaut Training Center, Poland

GLEX-2021.8.2.5
Can high energy particle detectors be used for improving risk models in space radiobiology ?
Alessandro Bartoloni, Italy

GLEX-2021.8.2.7
DESIGN AND CREATION OF A NEW MEDICAL AND PSYCHOLOGICAL CONTROL SYSTEM FOR MANNED MISSIONS TO THE MOON
Aaron Garduño Rodríguez, Moscow Aviation Institute (National Research Institute, MAI), Russian Federation

GLEX-2021.8.2.8
CPR AND RESCUER'S POSITION IN MICROGRAVITY
Arkadiusz Trzos, Jagiellonian University, Poland

GLEX-2021.8.2.9
MAINTAINING ALLOWABLE CONCENTRATION OF CARBON DIOXIDE IN THE ATMOSPHERE OF HABITABLE PRESSURIZED MODULES OF SPACE STATIONS.
Arkadiy Guzenberg, S.P. Korolev Rocket and Space Corporation Energia, Russian Federation

GLEX-2021.8.2.10
ANALYSIS OF PLANT MORPHOLOGY AND PHYLOGENETICS OF INDIGENOUS PLANTS AS A SOURCE OF FOOD, OXYGEN AND MEDICINAL PURPOSES FOR SPACE APPLICATIONS
Ilankuzhali Elavarasan, Space Development Nexus, SDNx, India

GLEX-2021.8.2.11
MINIMIZATION OF THE EQUIVALENT SYSTEM MASS OF A VITAMIN GREENHOUSE WITH A LED LAMP FOR VARIOUS SCENARIOS OF SPACE MISSIONS
Andrey Buryak, Russian Academy of Sciences / Lomonosov Moscow State University, Russian Federation

GLEX-2021.8.2.12
DEVELOPMENT OF CRYOGENIC AIR PURIFICATION FOR DEEP SPACE APPLICATIONS
Pascal Barbier, Air Liquide, France

8.3. Challenges of Life Support/Medical Support for Human Missions (3)

June 17 2021, 11:00 — Hall #9

Chair(s): Igor V. Sorokin, S.P. Korolev Rocket and Space Corporation Energia, Russian Federation;

GLEX-2021.8.3.1
TECHNICAL REQUIREMENTS FOR AUTONOMOUS AI-ENABLED HEALTHCARE DIAGNOSTICS IN SPACE
Eleni Antoniadou, , United States

GLEX-2021.8.3.2
KYMIRA: ASTRONAUT PHYSIOLOGICAL HEALTH MONITORING USING SMART UNDERLAYER GARMENT.
ASHFAQ GILKAR, , United Kingdom

GLEX-2021.8.3.3
WALKING STRATEGY DURING THE REPEATED LONG-DURATION SPACE FLIGHTS
Alina Saveko, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.8.3.4
THE INFLUENCE OF DIET ON BEHAVIOR IN SIMULATED SPACE MISSION CONDITIONS
Natalia Bubrowska, Jagiellonian University, Poland

GLEX-2021.8.3.5 (non-confirmed)
HUMAN HEART DOES NOT YEARN TO BE FREE FROM GRAVITY: A REVIEW OF CARDIOVASCULAR HEALTH IN SPACE
Alexander Van Heerden, UK NHS Trust, United Kingdom

GLEX-2021.8.3.6
TRAINER TO PREVENT BONE RESORPTION IN SPACEFLIGHT
John Christy Johnson, University of Alberta, Canada

GLEX-2021.8.3.7
THE IMPACT OF MICROCLIMATE PARAMETERS OF LONG-TERM SPACE FLIGHTS AND COMMENSURABLE SIMULATING CONFINEMENTS ON THE HUMAN PSYCHOPHYSIOLOGICAL STATE AND BODY COMPOSITION
Igor Nichiporuk, RF SRC - Institute of Biomedical Problems of the RAS, Russian Federation

GLEX-2021.8.3.9
VARIABLE CLIMATE BIOSPHERE
Serge Ameye, ,

GLEX-2021.8.3.10
USE OF METHANE IN CLOSED-LOOP LIFE SUPPORT SYSTEMS.
Alexandr Zheleznyakov, S.P. Korolev Rocket and Space Corporation Energia, Russian Federation

GLEX-2021.8.3.11
WOLFSAT-3: A REVOLUTIONARY ASPECT OF SUSTAINING LIFE IN THE SPACE ENVIRONMENT
Maya Mohanty, BLUECUBE Aerospace, United States

GLEX-2021.8.3.12 (non-confirmed)
TOWARDS QUANTUM ASTRONAUTICS
Michael Popov, University of Oxford, United Kingdom

9. Space Stations

9.1. Space Stations

June 16 2021, 11:00 — Hall #14

Chair(s): Kevin D. Foley, The Boeing Company, United States; Igor V. Sorokin , S.P. Korolev Rocket and Space Corporation Energia, Russian Federation;

GLEX-2021.9.1.1 (non-confirmed)
INTERNATIONAL SPACE STATION : MAKING THE MOST OF OUR FUTURE
Kevin D. Foley, The Boeing Company, United States

GLEX-2021.9.1.2
BARTOLOMEO: EXTERNAL PAYLOAD MISSION HOSTING ON THE ISS AS A SERVICE
Yannick JEGO, Airbus Defence & Space, Germany

GLEX-2021.9.1.3
APPLICATION OF A HEAT PIPE NETWORK IN THERMAL DESIGN OF MECHANICAL ARM JOINT OF CHINESE SPACE STATION
Li Zhang, China Academy of Space Technology (CAST), China

GLEX-2021.9.1.4
CONCEPT FOR A GATEWAY PHASE 2 ELEMENT
Timothy Cichan, Lockheed Martin Corporation, United States

GLEX-2021.9.1.5
CONCEPTS FOR JOINT INTERNATIONAL MODULES
Matthew Duggan, The Boeing Company, United States

GLEX-2021.9.1.6
MISSION ANALYSIS TO MEASURE RADIATION DOSE ABOUT THE EARTH-MOON LAGRANGIAN POINTS
Marion Burnichon, Institut Supérieur de l'Aéronautique et de l'Espace (ISAE), France

GLEX-2021.9.1.7
CENTRIFUGAL SPACE STATION
Heet Naik, University of Mumbai, India

GLEX-2021.9.1.8
INTERNATIONAL LEGAL REGIME OF FUTURE SPACE STATIONS: PROBLEMS OF OPERATION FROM THE LEGAL POINT OF VIEW
Irina Chernykh, Peoples' Friendship University of Russia (RUDN University), Russian Federation

GLEX-2021.9.1.10
THE INTERNATIONAL SPACE STATION AS AN EXAMPLE OF INTERNATIONAL COOPERATION
Maria del Lujan Flores, , Uruguay

GLEX-2021.9.1.11
DESIGN CASE STUDY OF A NATIONAL SPACE STATION: ORBITAL, LOGISTICAL AND STRATEGIC CONSIDERATIONS
Yukta Sharma, , India

GLEX-2021.9.1.12
RADIATION SAFETY ISSUES FOR HIGH LATITUDE SPACE STATIONS
Vyacheslav Shurshakov, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation

10. Space Resources

10.1. Space Resources (1)

June 16 2021, 16:30 — Hall of Library

Co-Chair(s): Chris Welch, International Space University (ISU), France; Anatoli Petrukovich, Institute for Space Research, Russian Federation;

GLEX-2021.10.1.1
LUNAR ISRU GROUND PROTOTYPE FOR THE DEMONSTRATION OF OXYGEN EXTRACTION FROM LUNAR REGOLITH
Isacco Pretto, OHB Italia SpA, Italy

GLEX-2021.10.1.2
MOONLIFE: FERMENTATION AS IN-SITU RESOURCE UTILIZATION TECHNOLOGY
Álvaro Tomás Soria Salinas, HE Space Operations, Germany

GLEX-2021.10.1.3
AIRBUS - AIR LIQUIDE: COMMON VISION AND ROADMAP FOR A LUNAR INDUSTRIAL ECOSYSTEM
Pascal Barbier, Air Liquide, France

GLEX-2021.10.1.4
CONCEPT FOR A LUNAR STATION MADE OF ISRU PRODUCED FIBRE MATERIALS
Stephan Kalapis, RWTH Aachen University, Germany

GLEX-2021.10.1.6
ISPACE'S ISRU 2022 MISSION TO THE MOON
Kyle Acierno, ispace, Inc, Luxembourg

GLEX-2021.10.1.7
AUTONOMOUS ROVER FOR LUNAR MINING AND EXPLORATION (ARLME)
Jayakumar Venkatesan, Valles Marineris International Private Limited, India

GLEX-2021.10.1.8
ATMOSPHERIC RE-ENTRY ENERGY STORAGE (ARES)- A NOVEL CONCEPT FOR UTILIZING ATMOSPHERIC RE-ENTRY ENERGY
Raja Pandi Perumal, University of Luxembourg, Luxembourg

GLEX-2021.10.1.9
ASTEROID MINING: MULTIPLE SPACECRAFT LOGISTICS FOR MARS SUPPLY
Serena Suriano, Italy

GLEX-2021.10.1.10
LEGAL ASPECTS OF THE NOTION "SPACE RESOURCES"
Irina Chernykh, Peoples' Friendship University of Russia (RUDN University), Russian Federation

GLEX-2021.10.1.11
RESOLVING THE "CHICKEN-OR-EGG" PROBLEM IN SPACE RESOURCE DEVELOPMENT: AN ECOSYSTEM DESIGN APPROACH
Lucretia Zhang, National University of Singapore, Singapore, Republic of

GLEX-2021.10.1.12
IN THE SEARCH FOR IMPROVEMENTS OF SPACE MINING INTERNATIONAL REGULATION: ANALOGY WITH OTHER REGIMES
Miraslava Kazlouskaya, International Institute of Air and Space Law, Leiden University, The Netherlands

10.2. Space Resources (2)

June 17 2021, 11:00 — Hall of Library

Chair(s): Dmitriy Grishko, Bauman Moscow State Technical University, Russian Federation;

GLEX-2021.10.2.1
THE EUROPEAN SPACE RESOURCES INNOVATION CENTRE – ESRIC
Bob Lamboray, Luxembourg Space Agency, Luxembourg

GLEX-2021.10.2.3
THE CIS-LUNAR ECOSYSTEM SIMULATOR - AN INTERACTIVE SYSTEMS MODEL AND SCENARIOS OF THE RESOURCES INDUSTRY
Marc-Andre Chavy-Macdonald, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

GLEX-2021.10.2.4
WHETHER INTERNATIONAL COOPERATION OF STATES IS POSSIBLE IN THE EXPLORATION OF SPACE RESOURCES?
Aslan Abashidze, Peoples' Friendship University of Russia (RUDN University), Russian Federation

GLEX-2021.10.2.5
WHAT'S NEXT FOR THE REGULATION OF UTILISING SPACE RESOURCES? TERRESTRIAL MINING VERSUS SPACE MINING – THE PERSPECTIVE OF THE TERRESTRIAL EXTRACTIVE INDUSTRY
Katarzyna Malinowska, Kozminski University, Poland

GLEX-2021.10.2.6
PLANETARY PROTECTION AND MARTIAN ISRU
Maya Nasr, Massachusetts Institute of Technology (MIT), United States

GLEX-2021.10.2.7 (non-confirmed)
NUCLEAR FUSION AND THE MOON AS A SOURCE OF POWER FOR THE WORLD— POSSIBILITY OF HELIUM3 FUSION WITH HELIUM3 AS A LUNAR RESOURCE
Ugur Guven, UN CSSTEAP, United States

GLEX-2021.10.2.8
NEURAL NETWORK CONTROL OF WHEEL LOADER BUCKET FILLING FROM PILE APPROACH TO EXTRACTION
Eric Halbach, Finland

GLEX-2021.10.2.9
THE USE OF RADIATION-RESISTANT MATERIALS IN GAS SEMICONDUCTOR FOURIER SPECTROSCOPY FOR EXPRESS ANALYSIS OF ROCKET FUEL IN THE PRODUCTION PROCESS ON THE MOON / MARS / ASTEROIDS
Sergey Kazakov, Ioffe Physico-Technical Institute, Russian Federation

GLEX-2021.10.2.10
RECYCLING OF PLASTIC WASTE MATERIALS ON-BOARD ISS INTO RADIATION PERSONAL PROTECTIVE EQUIPMENT USING ADDITIVE MANUFACTURING TECHNIQUES
Oren Milstein, StemRad, Israel

11. Ground-Based Preparatory Activities

11.1. Ground-Based Preparatory Activities (1)

June 15 2021, 15:30 — Hall #14

Chair(s): Bernard Foing , ILEWG "EuroMoonMars", The Netherlands;

GLEX-2021.11.1.1
CNES EXPLORATION CONTRIBUTIONS AND ITS FOCSE FACILITY TO SUPPORT OPERATIONS AND INNOVATION
Francois Jocteur Monrozier, Centre National d'Etudes Spatiales (CNES), France

GLEX-2021.11.1.4
CALIFORNIA RESEARCH ANALOG FOR DEEPSPACE AND LUNAR EXPLORATION (CRADLE)
Chrishma Singh-Derewa, , United States

GLEX-2021.11.1.6
MARKER LESS MOTION CAPTURE METHOD APPLICATION FOR INVESTIGATION OF JOINT PROFILES IN THE WORKPLACE UNDER SIMULATED HYPOGRAVITY
Tatiana Volkova, Space Innovation, Swiss Federal Institute of Technology in Lausanne, Switzerland

GLEX-2021.11.1.8
DEVELOPMENT OF A GROUND-BASED METHOD FOR TESTING THE INTERACTION OF MATERIALS WITH HIGH-SPEED DUST PARTICLES
Yulia Usherenko, Riga Technical University, Latvia

GLEX-2021.11.1.9
DESIGN OF JOINT TEST SYSTEM FOR SPACE STATION AND VISITING SPACECRAFT
Peng Ying, China Academy of Space Technology (CAST), China

GLEX-2021.11.1.10
DESIGN AND MANUFACTURING OF HARDWARE IN LOOP SIMULATION TESTBED EQUIPPED WITH VARIABLE SPEED CONTROL MOMENT GYROSCOPES
Siddharth Nimbajirao Deore, Sapienza University of Rome, Italy

GLEX-2021.11.1.11
DESIGN AND IMPLEMENTATION OF EMBEDDED SIMULATION PLATFORM FOR IN-ORBIT LARGE-SCALE SOFTWARE DEVELOPMENT
Li Zhao, China Academy of Space Technology (CAST), China

GLEX-2021.11.1.12
LEAPS: LUNAR EXPEDITION TO ASCERTAIN PHILOLAUS SKYLIGHTS
Dimitri Hollosi, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

GLEX-2021.11.1.13
LUNAR PNT SYSTEM CONCEPT AND SIMULATION RESULTS
Sergey Kaplev, Central Research Institute for Machine Building (JSC TSNIIMASH), Russian Federation

GLEX-2021.11.1.14
MODULAR ROBOTICS FOR LUNAR SAMPLE ACQUISITION, AGGREGATION AND RETURN TO ISS
Aniket Bire, University of Arizona, United States

GLEX-2021.11.1.16 (non-confirmed)
COMPUTATIONALLY EFFICIENT SIMULATION OF LOW-THRUST TRAJECTORIES
Giulio Avanzini, Università del Salento, Italy

GLEX-2021.11.1.17
GROUND TEST ANALYSIS OF POLYMERS DEGRADATION CAUSED BY CHARGED PARTICLES IN GEOSTATIONARY ORBITS
Fahd Moumni, Laboratory of Spacecraft Environment Interaction Engineering, Kyushu Institute of Technology, Japan

GLEX-2021.11.1.18
A GLIMPSE ON EVOLUTION OF ASTRONAUT TRAINING OVER THE YEARS
Umang Jain, Space Generation Advisory Council (SGAC), India

11.2. Ground-Based Preparatory Activities (2)

June 16 2021, 14:00 — Hall #14

Chair(s): Kevin D. Foley , The Boeing Company, United States;

GLEX-2021.11.2.1
LIFE AND RESEARCH AT MOONBASE: RESULTS FROM ILEWG EUROMOONMARS CAMPAIGNS AND SIMULATIONS
Bernard Foing, ILEWG "EuroMoonMars", The Netherlands

GLEX-2021.11.2.3
PHYSIOLOGICAL AND INVENTORY DATA OF CREWS OF ARES-III AND LEARN ANALOG MISSIONS IN THE LUNARES HABITAT
Matej Poliacek, Deutsch Luft und Raumfahrt Zentrum (DLR), Slovak Republic

GLEX-2021.11.2.4
INTA AS TEST HOUSE FOR PLATO
Gonzalo Ramos, Instituto Nacional de Tecnica Aeroespacial (INTA), Spain

GLEX-2021.11.2.5
MARS ANALOG MISSIONS: ARE WE GO OR NO GO?
Deepasree Bangaru-Raju, UK NHS Trust, United Kingdom

GLEX-2021.11.2.6
HABITATOS SENSOR DATA ANALYSIS FOR ANALOG SIMULATIONS AT AATC HABITAT FROM 2016-2020
Matt Harasymczuk, Analog Astronaut Training Center, Poland

GLEX-2021.11.2.7
DRY IMMERSION AS A PERSPECTIVE MODEL FOR SIMULATION OF PHYSIOLOGICAL EFFECTS OF SPACE FLIGHT
Elena Tomilovskaya, Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation

GLEX-2021.11.2.8
NON-CIRCULATIVE HYDROPONICS TO PRESERVE PLANT HEALTH DURING A LONG-TIME POWER FAILURE IN A SPACE COLONY
Emma FORGUES--MAYET, , France

GLEX-2021.11.2.9 (non-confirmed)
FEATURES OF CIRCULAR PROCESSES OF CHEMICAL COMPOUNDS AT THE TESTING OF AN EXPERIMENTAL CLOSED LIFE SUPPORT SYSTEM
Sofya Ushakova, Institute of Biophysics, Russian Academy of Sciences (RAS), Siberian State Aerospace University, Russian Federation

GLEX-2021.11.2.10
MICROBIOME CHAMBER DEVELOPMENT FOR GROUND-BASED MARTIAN EVOLUTIONARY STUDIES
Chesler Thomas, Space Generation Advisory Council (SGAC), India

11.3. Ground-Based Preparatory Activities (3)

June 17 2021, 15:30 — Hall #9

Co-Chair(s): Igor V. Sorokin , S.P. Korolev Rocket and Space Corporation Energia, Russian Federation; Kevin D. Foley , The Boeing Company, United States;

GLEX-2021.11.3.1
RESEARCH ON FAST TEST METHOD OF SPACECRAFT FOR EMERGENCY LAUNCH MISSION
Weihe Diao, China Academy of Space Technology (CAST), China

GLEX-2021.11.3.2
STUDY AND DESIGN FOR DISTRIBUTED ON-ORBIT MONITORING SYSTEM OF MANNED SPACECRAFT
Zongfei Xu, China

GLEX-2021.11.3.3
THE ESA/DLR LUNA ANALOGUE FACILITY PREPARING FOR LUNAR EXPLORATION: STATUS AND LATEST DEVELOPMENTS
Juergen Schlutz, European Space Agency (ESA), Germany

GLEX-2021.11.3.4
RESEARCH ON SPACECRAFT ASSEMBLY INTEGRATION AND TEST CENTER PROJECT MANAGEMENT
Weidan Li, China Academy of Space Technology (CAST), China

GLEX-2021.11.3.5
PREPARING FUTURE MOON EXPLORATION MISSIONS THROUGH ENGINEERING AND SCIENTIFIC EXPERIMENTS
IOANA-ROXANA PERRIER, Institute of Polytechnic Science and Aeronautics (IPSA), France

GLEX-2021.11.3.7 (non-confirmed)
SPACE TECHNOLOGY APPLICATIONS – INTEGRATION GEOTECHNICAL INVESTIGATION AND SPACE TECHNOLOGY ENVIRONMENT
Rustam Rustamov, Azerbaijan

GLEX-2021.11.3.8 (non-confirmed)
THE LOGISTICS REQUIREMENTS AND THE DESIGN OF A SPACEPORT
Ugur Guven, UN CSSTEAP, United States

12. Transcending Societal Issues for Space Exploration

12.1. Transcending Societal Issues for Space Exploration (1)

June 15 2021, 15:30 — Hall #16

Co-Chair(s): Anatoli Petrukovich, Institute for Space Research, Russian Federation; Ioana-Roxana Perrier, Institute of Polytechnic Science and Aeronautics (IPSA), France;

GLEX-2021.12.1.1
BEYOND THE LAW OF FLAGS: CLARIFYING LIABILITY ISSUES FOR PERSONNEL DURING HUMAN SPACE FLIGHT
Brenna Gautam, Space Generation Advisory Council (SGAC), United States

GLEX-2021.12.1.2
FUTURE SPACE COMMUNITIES: WHICH LAWS APPLY AND CAN AFFIRMATIVE DEFENSES TO PATENT INFRINGEMENT PREEMPT ENFORCEMENT THAT MAY PREVENT COLLABORATIVE VISITS BY ASTRONAUTS, COSMONAUTS, GAGANAUTS AND TAIKONAUTS TO RESPECTIVE FOREIGN FACILITIES
Steven Wood, State University of New York, United States

GLEX-2021.12.1.3
A NEW STATE IN OUTER SPACE: THE LEGAL CHALLENGES AND THE NEED TO GRANT STATEHOOD TO ASGARDIA.
Lizeth Sanchez Aguirre, United States

GLEX-2021.12.1.5
SAVING ASTRONAUTS WHO?
Conghui Liu, China

GLEX-2021.12.1.6 (non-confirmed)
WILL ELON MUSK END UP LIKE GRIMES? THE LEGAL FATE OF PRIVATE COLONIES ON EARTH: THE CASE OF GENERAL JOHN SUTTER'S NEW HELVETIA
Alice Riviere, Airbus Defence & Space, Germany

GLEX-2021.12.1.7
A POLICY FRAMEWORK FOR A BETTER SPACE PROGRAM
Aaron Oesterle, United States

GLEX-2021.12.1.8
DEMYSTIFYING SPACE SCIENCE TO THE SOCIETY FOR A FORTUNATE SPACE EXPLORATION
Seth Nyawacha, Space Generation Advisory Council (SGAC), Kenya

GLEX-2021.12.1.9
ARTMOONMARS PROGRAMME OF CULTURAL AND ARTISTIC ACTIVITIES
Elizaveta Glukhova, ILEWG ExoHab Team, The Netherlands

GLEX-2021.12.1.10 (non-confirmed)
CREATING A SELF-SUSTAINING HUMAN SPACEFLIGHT SECTOR IN THE UAE
Hoor AlMaazmi, UAE Space Agency, United Arab Emirates

GLEX-2021.12.1.11
DREAMS OF THE ERATH AND SKY: BIRTH OF THE RUSSIAN SPACE AESTHETICS
Olesya Turkina, Russian Federation

GLEX-2021.12.1.12
INTERPLANETARY HUMAN RIGHTS: REIMAGINING HUMAN RIGHTS FOR OUTER SPACE
AJ Link, Jus Ad Astra, United States

GLEX-2021.12.1.13
HOW TO BE A TOURIST IN SPACE: INTERNATIONAL LEGAL ASPECTS AND PERSPECTIVES
Andrey Dementev, Peoples' Friendship University of Russia (RUDN University), Russian Federation

GLEX-2021.12.1.14
BENEFITING MANKIND: THE ROLE OF CIVIL SOCIETY IN THE EMERGENCE OF A SPACE-ACTIVE STATE
Iva Ramuš Cvetkovič, Slovenia

GLEX-2021.12.1.15
EARTH-MOON SOLAR SAIL CHALLENGE GLOBAL CIRCUS
Guy Pignolet, Reunion Island Space Initiative (RISI), La Reunion

GLEX-2021.12.1.16 (non-confirmed)
GLOBAL FRAMEWORKS FOR SOCIO-TECHNO ARCHITECTURES TO TRANSCEND SOCIOPOLITICAL CONSTRAINTS WITH SYSTEMATIC TRANSPARENCY, CONFIDENCE BUILDING, AND TRUST.
Nathaniel Dailey, The MITRE Corporation, United States

GLEX-2021.12.1.17
A SYSTEMS ENGINEERING FRAMEWORK FOR SPACE SECTOR EDUCATION
Yaroslav Menshenin, Skolkovo Institute of Science and Technology, Russian Federation

GLEX-2021.12.1.18 (non-confirmed)
DEVELOPING A VIEW OF SOCIOTECHNICAL RESILIENCE FOR SPACE SECTOR
Olga Sokolova, Switzerland

12.2. Transcending Societal Issues for Space Exploration (2)

June 16 2021, 14:00 — Hall #16

Chair(s): Anatoli Petrukovich Institute for Space Research, Russian Federation;

GLEX-2021.12.2.1
INTEGRATING SPACE SUSTAINABILITY INTO DOUBLE MATERIALITY DECISION-MAKING AND REPORTING
Christopher Geiger, Lockheed Martin Corporation, United States

GLEX-2021.12.2.3
SPACE CYBERSECURITY CONSIDERATIONS FOR INTERNATIONAL COLLABORATION
Aline McNaull, United States

GLEX-2021.12.2.4
INSURING THE UNINSURABLE. HOW SPACE LAWS SHIFT THE BOUNDARIES OF INSURANCE– THE CASE OF EMERGING NATIONAL SPACE LAWS
Katarzyna Malinowska, Kozminski University, Poland

GLEX-2021.12.2.5
LONG TERM MISSION ASTRONAUTS' PSYCHOLOGY: RETURNING TO EARTH AND INTO THE SOCIETY
Natasha Hrycan, Russian Federation

GLEX-2021.12.2.7
SCIENCE OUTREACH THROUGH ART: EXPERIENCE AS AN SCIENTIST-ARTIST IN PUBLIC ENGAGEMENT
Priyanka Das Rajkakati, Institut Supérieur de l'Aéronautique et de l'Espace (ISAE), France

GLEX-2021.12.2.8
ROBOTIC EDUCATION FOR SPACE EXPLORATION. TRANSCENDING SOCIETAL BARRIERS BETWEEN HUMANS AND ROBOTS FOR EDUCATION AND EXPLORATION.
Michael Waltemathe, Ruhr-University Bochum, Germany

GLEX-2021.12.2.9 (non-confirmed)
INTERNATIONAL COOPERATION IN SPACE EDUCATION
Denis Prudnik, Russian Federation

GLEX-2021.12.2.10
IT TAKES A NATION TO RACE TO SPACE: THE ROLE OF THE PUBLIC IN EMERGING SOUTHEAST ASIAN SPACEFARING NATIONS
Arka Ray, National University of Singapore, Singapore, Republic of

GLEX-2021.12.2.11
RECONVENE ASIAN MIRACLE: SPACE INDUSTRIALIZATION IN INDONESIA
Yunita Permatasari, Indonesian National Institute of Aeronautics and Space (LAPAN), Indonesia

GLEX-2021.12.2.12
Space and space education in East Africa
Sharon Muriuki, , Kenya

12.3. Transcending Societal Issues for Space Exploration (3)

June 17 2021, 11:00 — Hall #16

Chair(s): Bernard Foing, ILEWG "EuroMoonMars", The Netherlands;

GLEX-2021.12.3.1
SPACE EXPLORATION AND THE IMAGINARIES OF LIVING IN A CLIMATE-CHANGING WORLD
Anna Szolucha, Jagiellonian University, Poland

GLEX-2021.12.3.2
SPACE AS A CHANCE TO CORRECT SOCIETAL ISSUES
Quentin Gueho, Université Paris-Sud 11 Faculté Jean Monnet, France

GLEX-2021.12.3.3
BATTLE OF THE GODS: THE OUTER SPACE TREATY'S ARTICLE I VS. ARTICLE VIII
Katja Grünfeld, Slovenia

GLEX-2021.12.3.5
THE RIGHT TO HEALTH IN SPACE OUTSIDE, A PENDING TASK FOR THE HUMAN RIGHTS.
Itzel Nayeli Cortés Rocillo, Universidad Nacional Autónoma de México (UNAM), Mexico

GLEX-2021.12.3.8 (non-confirmed)
THE INCLUSION OF SPACE TECHNOLOGY AND SPACE EXPLORATION FOR THE BENEFIT OF THE GENERAL PUBLIC
Ugur Guven, UN CSSTEAP, United States

GLEX-2021.12.3.10
VISUALISATIONS OF TRENDS AMONG NEWSPACE COMPANIES TO HELP THE OPTIMISATION AND MODERNISATION OF CURRENT REGULATORY REGIMES IN SPACE
Alex Marinova, First Steps Legal, United Kingdom

GLEX-2021.12.3.11 (non-confirmed)
THE GREEN SPACE ECONOMY - AFRICA'S WAY TOWARDS SUSTAINABLE SPACE MISSIONS
Guido Schwartz, Foundation for Space Development South Africa, Germany

GLEX-2021.12.3.12
THE AEROSPACE AND INNOVATION ACADEMY: EMPLOYING BLUE-SKY LEARNING AS A DISRUPTIVE EDUCATIONAL MODEL
Shawna Christenson, BLUECUBE Aerospace, United States

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A = Author CA = Co-author

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Dong, Jie	A	GLEX-2021.7.1.2
Dooner, Caeden	A	GLEX-2021.7.2.6
Doressoundiram, Alain	CA	GLEX-2021.3.2.3
Dovgan, Vyacheslav	CA	GLEX-2021.2.2.1
Drescher, Juergen	CA	GLEX-2021.8.2.2
Drobyshev, Sergey	CA	GLEX-2021.9.1.12
Du, Chongrui	CA	GLEX-2021.2.5.6
Duan, Xun	CA	GLEX-2021.2.5.1
DUBEY, RAJESH KUMAR	A	GLEX-2021.5.2.9
Duggan, Matthew	A	GLEX-2021.9.1.5
Duggan, Matthew	A	GLEX-2021.3.2.6
Duggan, Matthew	A	GLEX-2021.3.2.10
Duggan, Matthew	CA	GLEX-2021.3.4.1
Durgule, Manali	CA	GLEX-2021.7.1.17
Durrant, Stephen	CA	GLEX-2021.3.1.4
Durrant, Stephen	CA	GLEX-2021.3.2.2
Durst, Steve	A	GLEX-2021.2.2.3
DuVal, Amanda	CA	GLEX-2021.10.2.10

E

Name	Role	Paper
Eagleson, David	CA	GLEX-2021.10.2.6
Edwards, Christine	A	GLEX-2021.2.1.4
Edwards, Christine	CA	GLEX-2021.9.1.4
Eismont, Natan	CA	GLEX-2021.4.1.1
Eismont, Natan	CA	GLEX-2021.5.1.5
Eismont, Natan	A	GLEX-2021.5.2.1
El-Dali, Wael	CA	GLEX-2021.2.3.2
Elavarasan, Ilankuzhali	A	GLEX-2021.8.2.10
Elavarasan, Ilankuzhali	CA	GLEX-2021.3.3.5
Elhoushy, Samer	CA	GLEX-2021.7.1.8
Elkin, Konstantin	CA	GLEX-2021.2.2.9
Elkin, Konstantin	CA	GLEX-2021.2.3.3
Elshanskiy, Leonid	CA	GLEX-2021.1.3.3
Elsperman, Michael	CA	GLEX-2021.3.2.6
Engle, James	CA	GLEX-2021.3.2.10
Ennis, Stephen	CA	GLEX-2021.2.4.5
Ennis, Stephen	CA	GLEX-2021.11.3.3

F

Name	Role	Paper
FAVIER, JEAN	CA	GLEX-2021.2.1.12
Fedele, Alberto	CA	GLEX-2021.7.3.5
Fedyaev, Konstantin	CA	GLEX-2021.4.1.1
Fedyaev, Konstantin	CA	GLEX-2021.5.1.5
Fedyaev, Konstantin	CA	GLEX-2021.5.1.7
Feichtinger, Elena	A	GLEX-2021.8.1.2
Fernández Bravo, Elena	CA	GLEX-2021.7.1.16
Ferra, Lionel	CA	GLEX-2021.2.4.5
Ferra, Lionel	CA	GLEX-2021.11.3.3
Ferracina, Luca	CA	GLEX-2021.7.3.5
Ferraris, Simona	CA	GLEX-2021.3.3.12
Ferreira, Edmundo	CA	GLEX-2021.2.1.10
Fino, Ivan	CA	GLEX-2021.10.2.6
Firre, Daniel	CA	GLEX-2021.1.3.3
Fisackerly, Richard	A	GLEX-2021.2.4.2
Fischer, Beate	CA	GLEX-2021.2.4.5
Fischer, Beate	CA	GLEX-2021.11.3.3
Fitzsimmons, Alan	CA	GLEX-2021.4.1.4
Fitzsimmons, Alan	CA	GLEX-2021.4.1.6
Flores, Maria del Lujan	A	GLEX-2021.9.1.10
Foing, Bernard	CA	GLEX-2021.12.1.9
Foing, Bernard	A	GLEX-2021.2.1.3
Foing, Bernard	CA	GLEX-2021.2.1.13
Foing, Bernard	A	GLEX-2021.11.2.1
Foing, Bernard	CA	GLEX-2021.11.2.8
Foing, Bernard	CA	GLEX-2021.12.2.8
Foing, Bernard	CA	GLEX-2021.2.2.8
Foing, Bernard	CA	GLEX-2021.2.3.11
Foing, Bernard	CA	GLEX-2021.11.3.5
Foley, Kevin D.	A	GLEX-2021.9.1.1
Fomina, Elena	CA	GLEX-2021.1.1.12
FORGUES--MAYET, Emma	A	GLEX-2021.11.2.8
FORGUES--MAYET, Emma	CA	GLEX-2021.11.3.5
Fornasier, Sonia	CA	GLEX-2021.3.2.3
Fortin, Clement	CA	GLEX-2021.12.1.17
Fossà, Alberto	A	GLEX-2021.2.5.2
Freddi, Riccardo	CA	GLEX-2021.10.1.1
Frekhaug, Thomas	A	GLEX-2021.7.4.4
Frezza, Lorenzo	CA	GLEX-2021.7.5.4
Friend, Jonathan	CA	GLEX-2021.2.2.5
Fujimoto, Masaki	CA	GLEX-2021.3.1.6
Funaki, Ikkoh	CA	GLEX-2021.3.3.12
Funke, Oliver	CA	GLEX-2021.3.3.12
Funtova, Irina	CA	GLEX-2021.8.1.6

G

Name	Role	Paper
Gackowski, Joris	A	GLEX-2021.3.1.9
Gammarano, Adele	A	GLEX-2021.2.4.8
Gancet, Jeremi	CA	GLEX-2021.2.3.7
Gardi, Roberto	CA	GLEX-2021.7.3.5
Garduño Rodríguez, Aaron	A	GLEX-2021.8.2.7
Gass, Volker	CA	GLEX-2021.11.1.6
Gatens, Robyn	CA	GLEX-2021.9.1.1
GATHU, ISAAC	A	GLEX-2021.3.4.8
Gautam, Brenna	A	GLEX-2021.12.1.1
Gaviraghi, Giorgio	A	GLEX-2021.6.2.6
Geiger, Christopher	A	GLEX-2021.12.2.1
Gerasymchuk, Sergey	CA	GLEX-2021.6.1.8
Gerdes, Levin	CA	GLEX-2021.2.1.10
Gerndt, Andreas	CA	GLEX-2021.2.1.7
Gerth, Ingo	CA	GLEX-2021.4.1.5
Ghabcheloo, Reza	CA	GLEX-2021.10.2.8
Gherghescu, Andrei	CA	GLEX-2021.2.1.10
GILKAR, ASHFAQ	A	GLEX-2021.8.3.2
Gimadiev, Rinat	CA	GLEX-2021.8.1.3
Giordano, Pietro	CA	GLEX-2021.2.3.2
Giridharan, Nithyaashree	CA	GLEX-2021.7.1.13
Giridharan, Nithyaashree	CA	GLEX-2021.3.4.6
Giulietti, Fabrizio	CA	GLEX-2021.11.1.16
Glukhikh, Sergey	CA	GLEX-2021.8.3.10
Glukhova, Elizaveta	A	GLEX-2021.12.1.9
Glukhova, Elizaveta	CA	GLEX-2021.11.2.1
Glukhova, Elizaveta	CA	GLEX-2021.2.3.11
Goh, Lian Ming	CA	GLEX-2021.1.2.6
Gokhale, Varun	CA	GLEX-2021.7.4.5
Goldwyn, Daryl	CA	GLEX-2021.9.1.7
Goldwyn, Daryl	CA	GLEX-2021.5.2.2
Gollins, Nick	A	GLEX-2021.2.1.11
Gomez Otero, David	CA	GLEX-2021.2.3.2
Goodliff, Kandyce	CA	GLEX-2021.1.1.2
Goodliff, Kandyce	CA	GLEX-2021.1.1.3
Goodliff, Kandyce	CA	GLEX-2021.1.2.7
Gorbunov, Andrey	CA	GLEX-2021.7.2.10
Gordienko, Kirill	A	GLEX-2021.8.1.3
Gorinov, Dmitry	CA	GLEX-2021.5.2.1
Gouault, Quentin	CA	GLEX-2021.11.2.8
Gouault, Quentin	CA	GLEX-2021.11.3.5
Gould, Michael	CA	GLEX-2021.12.3.10
Goulet, Sébastien	CA	GLEX-2021.3.2.3
Graber, Thorsten	CA	GLEX-2021.2.1.10
Grachev, Valery	CA	GLEX-2021.1.3.3
Gramiccia, Luciano	CA	GLEX-2021.7.3.5
Grassi, Michele	CA	GLEX-2021.7.3.5
Grattan, Kyran	CA	GLEX-2021.10.2.6
Green, Simon	CA	GLEX-2021.4.1.4
Green, Simon	CA	GLEX-2021.4.1.6
Grenouilleau, Jessica	CA	GLEX-2021.2.1.10
Grevtsev, Mikhail	CA	GLEX-2021.10.2.9
Grimm-Windeler, Jonas	CA	GLEX-2021.12.2.8
Grishin, Alexey	CA	GLEX-2021.8.1.1
Grishin, Alexey	CA	GLEX-2021.8.3.3
Grott, Matthias	CA	GLEX-2021.3.4.3
Grundmann, Jan Thimo	CA	GLEX-2021.1.1.7
Grundmann, Jan Thimo	CA	GLEX-2021.3.3.12
Grünfeld, Katja	A	GLEX-2021.12.3.3
Gscheidle, Christian	CA	GLEX-2021.2.3.7
Guardabasso, Paolo	CA	GLEX-2021.9.1.6
Guardabasso, Paolo	CA	GLEX-2021.2.4.9
Gueho, Quentin	A	GLEX-2021.12.3.2
Guidi, John	CA	GLEX-2021.1.1.2
Guidi, John	CA	GLEX-2021.1.2.7
Guimaraes, Lamartine Nogueira Frutuoso	CA	GLEX-2021.3.3.12
Gupta, Aman	CA	GLEX-2021.7.1.17
Gusev, Vladimir	CA	GLEX-2021.6.2.3
Gushin, Vadim	CA	GLEX-2021.8.1.2
Guven, Ugur	A	GLEX-2021.7.3.7
Guven, Ugur	A	GLEX-2021.10.2.7
Guven, Ugur	A	GLEX-2021.12.3.8
Guven, Ugur	A	GLEX-2021.5.1.10
Guven, Ugur	CA	GLEX-2021.5.1.11
Guven, Ugur	A	GLEX-2021.11.3.8
Guzenberg, Arkadiy	A	GLEX-2021.8.2.9
Guzenberg, Arkadiy	CA	GLEX-2021.8.3.10
Gómez, Luis Jorge	CA	GLEX-2021.11.2.4

H

Name	Role	Paper
Haese, Marc	CA	GLEX-2021.1.1.2
Haese, Marc	CA	GLEX-2021.1.1.3
Haeuplik-Meusburger, Sandra	A	GLEX-2021.3.2.8
Halbach, Eric	A	GLEX-2021.10.2.8
Hameed, Hamza	A	GLEX-2021.1.2.10
Hanada, Toshiya	CA	GLEX-2021.7.3.9
Hann, Lukas	CA	GLEX-2021.2.1.10
Harasymczuk, Matt	A	GLEX-2021.8.1.12
Harasymczuk, Matt	A	GLEX-2021.11.2.6
Harasymczuk, Matt	CA	GLEX-2021.8.2.4
Harasymczuk, Matt	CA	GLEX-2021.8.2.8
Harasymczuk, Matt	CA	GLEX-2021.8.3.4
Hazadi, Matyas	CA	GLEX-2021.2.1.11
Head, James	CA	GLEX-2021.2.2.1
Heather, David	CA	GLEX-2021.2.4.2
Hedman, Niklas	CA	GLEX-2021.1.4.1
Heemskerk, Marc	CA	GLEX-2021.12.1.9
Heemskerk, Marc	CA	GLEX-2021.2.1.13
Heemskerk, Marc	CA	GLEX-2021.11.2.1
Heffernan, Luke	CA	GLEX-2021.1.2.6
Hemminger, Elke	CA	GLEX-2021.11.2.1
Hernández, Daniel	CA	GLEX-2021.11.2.4
Hillebrandt, Martin	CA	GLEX-2021.3.3.12
Hollosi, Dimitri	A	GLEX-2021.11.1.12
Houdou, Berengere	CA	GLEX-2021.2.4.2
Hrycan, Natasha	A	GLEX-2021.12.2.5
Hu, Chunyang	CA	GLEX-2021.2.5.1
HUAN, LIU	A	GLEX-2021.3.2.7
Hufenbach, Bernhard	CA	GLEX-2021.1.2.7
Hufenbach, Bernhard	CA	GLEX-2021.2.2.5
Hufenbach, Bernhard	A	GLEX-2021.2.3.2
Höflinger, Kilian	A	GLEX-2021.2.1.7

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Name	Role	Paper
Ianelli, Samantha	CA	GLEX-2021.7.3.5
Ide, Katharina	CA	GLEX-2021.12.2.8
Ignjatovic Stupar, Danijela	CA	GLEX-2021.2.2.6
IJpelaan, Frans	A	GLEX-2021.3.1.5
Ilyin, Viacheslav	A	GLEX-2021.8.1.11
Ilyin, Viacheslav	CA	GLEX-2021.1.4.1
IMAI, Takahiro	CA	GLEX-2021.11.1.17
Inozemtsev, Konstantin	CA	GLEX-2021.9.1.12
Irwin, Jacob	CA	GLEX-2021.7.4.9
Ishiguro , Masateru	CA	GLEX-2021.4.1.2
Ivanov, Andrey	CA	GLEX-2021.6.2.3
Ivanov, Konstantin	CA	GLEX-2021.1.3.3
Ivanova, Olga	CA	GLEX-2021.9.1.12
Iwata, Minoru	CA	GLEX-2021.11.1.17
Iwata, Takahiro	CA	GLEX-2021.3.2.3

J

Name	Role	Paper
Jacques, Benjamin	CA	GLEX-2021.8.1.10
Jaime, Andrea	CA	GLEX-2021.3.1.4
Jaime, Andrea	CA	GLEX-2021.3.2.2
Jaime, Andrea	CA	GLEX-2021.2.3.7
Jain, Umang	A	GLEX-2021.11.1.18
Janes, Noel	CA	GLEX-2021.7.1.16
Jansen, Frank	A	GLEX-2021.1.1.7
Jansen, Frank	A	GLEX-2021.3.3.12
Jansen, Roelof	CA	GLEX-2021.2.4.5
JEGO, Yannick	A	GLEX-2021.9.1.2
Jeong, Minseop	CA	GLEX-2021.4.1.2
JeongAhn, Youngmin	CA	GLEX-2021.4.1.2
Jeurissen, Ben	CA	GLEX-2021.8.1.1
Jia-Richards, Oliver	CA	GLEX-2021.7.1.10
Jillings, Steven	CA	GLEX-2021.8.1.1
Jing, Xuzhen	CA	GLEX-2021.11.1.9
Jocteur Monrozier, Francois	A	GLEX-2021.11.1.1
Johnson, John Christy	CA	GLEX-2021.8.1.8
Johnson, John Christy	A	GLEX-2021.8.1.9
Johnson, John Christy	A	GLEX-2021.8.3.6
Johnson, Karlton	CA	GLEX-2021.12.1.7
Johnson, Peter Anto	A	GLEX-2021.8.1.8
Johnson, Peter Anto	CA	GLEX-2021.8.1.9
Johnson, Peter Anto	CA	GLEX-2021.8.3.6

Joly, Fabrice	CA	GLEX-2021.2.3.2
Joseph, Nikolai	CA	GLEX-2021.1.1.3

K

Name	Role	Paper
K, Chiranthan	A	GLEX-2021.3.2.5
K S, Akhilesh	CA	GLEX-2021.3.2.5
Kalapis, Stephan	A	GLEX-2021.10.1.4
KANDASAMY, JAYARAMAN	CA	GLEX-2021.10.1.7
Kaplev, Sergey	A	GLEX-2021.11.1.13
Karimi, Hasan	CA	GLEX-2021.6.2.5
Kaul, Sanat	A	GLEX-2021.1.2.2
Kaur, Jasleen	CA	GLEX-2021.11.1.14
Kawakatsu, Yasuhiro	CA	GLEX-2021.3.1.6
Kazakov, Sergey	A	GLEX-2021.10.2.9
Kazinskiy, Nikita	A	GLEX-2021.6.2.8
Kazlouskaya, Miraslava	A	GLEX-2021.10.1.12
Kent, Jack	CA	GLEX-2021.5.1.6
Kerber, Sabrina	CA	GLEX-2021.12.1.9
Kerber, Sabrina	CA	GLEX-2021.11.2.1
Kernozhitsky, V.A.	CA	GLEX-2021.6.2.7
Kerolle, Mclee	CA	GLEX-2021.4.2.1
Kezerashvili, Roman Ya.	A	GLEX-2021.6.1.5
Khader, Zafera Amtul	A	GLEX-2021.4.2.6
Khader, Zafera Amtul	CA	GLEX-2021.5.2.2
Khalaua, Adelina	CA	GLEX-2021.5.2.3
Khanal, Ankit	CA	GLEX-2021.1.2.6
Khanal, Nischal	CA	GLEX-2021.1.2.6
Kharlamov, Maksim	A	GLEX-2021.7.4.3
Kiesling, Dylan	CA	GLEX-2021.1.3.5
Kiesling, Paul	A	GLEX-2021.1.3.5
KIM, Kyunghwan	CA	GLEX-2021.12.2.8
Kim, Myung-Jin	CA	GLEX-2021.4.1.2
Kim, Pureum	CA	GLEX-2021.4.1.2
Kim, Sangkyun	CA	GLEX-2021.7.1.14
Kim, Yebin	CA	GLEX-2021.1.2.6
Kimler, Beau	CA	GLEX-2021.7.2.3
Kiselev, Aleksei	A	GLEX-2021.7.1.4
Kiss, Adam	CA	GLEX-2021.2.2.7
Kitov, Vladimir	CA	GLEX-2021.2.1.18
Kminek, Gerhard	CA	GLEX-2021.1.4.1
Kneib, Jean-Paul	CA	GLEX-2021.10.2.3
Kochetkov, Alexey	CA	GLEX-2021.8.1.13
Kolar, Jan	CA	GLEX-2021.2.3.5
Kolar, Martin	A	GLEX-2021.6.1.9
Kolodziejczyk, Agata	CA	GLEX-2021.11.2.1
Kolodziejczyk, Agata	CA	GLEX-2021.11.2.6
Kolodziejczyk, Agata	CA	GLEX-2021.11.2.8
Kolodziejczyk, Agata	A	GLEX-2021.8.2.4
Kolodziejczyk, Agata	CA	GLEX-2021.8.2.8
Kolodziejczyk, Agata	CA	GLEX-2021.8.3.4
Kolodziejczyk, Agata	CA	GLEX-2021.11.3.5
Koloteva, Milena	CA	GLEX-2021.1.1.12
Kolychev, Aleksey	A	GLEX-2021.6.2.7
Komenda, Kristian	CA	GLEX-2021.11.3.5
Komissarova, Daria	CA	GLEX-2021.8.1.11
Konoplev, Yu.V.	CA	GLEX-2021.7.3.8
Koroteev, Anatoliy	CA	GLEX-2021.3.3.12
Koroteev, Anatoly S.	CA	GLEX-2021.1.1.7
Korotkov, E.B.	CA	GLEX-2021.7.1.4
Korotkov, E.B.	CA	GLEX-2021.7.2.10
Koryanov, Vsevolod	CA	GLEX-2021.5.1.5
Koryanov, Vsevolod	CA	GLEX-2021.5.1.7
Kosenkova, Anastasia	A	GLEX-2021.5.1.1
Koshlakov, Vladimir	CA	GLEX-2021.6.1.4
Koul, Vatasta	CA	GLEX-2021.11.1.18
Kozlov, D.A.	CA	GLEX-2021.7.3.4
Kozlov, I.A.	CA	GLEX-2021.7.3.4
Kozlov, Pavel	A	GLEX-2021.2.3.12
Kreisel, Joerg	CA	GLEX-2021.7.3.2
Krośniak, Mirosław	CA	GLEX-2021.8.2.8
Krośniak, Mirosław	CA	GLEX-2021.8.3.4
Krueger, Thomas	CA	GLEX-2021.2.1.10
Kuijper, Jim	CA	GLEX-2021.1.1.7
Kuijper, Jim	CA	GLEX-2021.3.3.12
Kuiper, Mary	CA	GLEX-2021.12.1.9
Kuiper, Mary	CA	GLEX-2021.2.3.11
Kukanov, Vladislav	CA	GLEX-2021.8.1.6
Kularatne, Banuka	CA	GLEX-2021.1.2.6
Kulkarni, Sakshi	CA	GLEX-2021.7.1.17
Kumar, Vinod	CA	GLEX-2021.2.1.16
Kumar, Vinod	CA	GLEX-2021.3.3.3
Kurgan, Arzu	A	GLEX-2021.1.1.8
Kämäräinen, Joni	CA	GLEX-2021.10.2.8
Küppers, Michael	CA	GLEX-2021.4.1.4
Küppers, Michael	A	GLEX-2021.4.1.6

L

Name	Role	Paper
Laad, Aryan	CA	GLEX-2021.5.1.6
Lagabarre, Sandra	CA	GLEX-2021.3.1.5
Lali, Mehdi	A	GLEX-2021.3.3.2
Lamboray, Bob	A	GLEX-2021.10.2.1
Landgraf, Markus	CA	GLEX-2021.1.1.2
Landsman, Yoav	CA	GLEX-2021.2.5.3
Lange, Christian	CA	GLEX-2021.1.1.2
Lange, Christian	A	GLEX-2021.1.1.3
Lange, Christian	CA	GLEX-2021.1.2.7
Lange, Jonathan	A	GLEX-2021.7.1.16
Lapach, Sergey	CA	GLEX-2021.8.2.11
Larina, Olga	A	GLEX-2021.8.1.5
Larrea Brito, Natalia	A	GLEX-2021.1.1.1
Lauer, Charles	A	GLEX-2021.2.2.4
Lauer, Charles	CA	GLEX-2021.2.3.4
Laureys, Steven	CA	GLEX-2021.8.1.1
Lavagna, Michèle	CA	GLEX-2021.10.1.1
Law, Meng	CA	GLEX-2021.8.1.1
Lay, Gary	CA	GLEX-2021.2.2.5
Lazar, Sapir	CA	GLEX-2021.10.2.10
Lazzarin, Monica	CA	GLEX-2021.4.1.4
Lazzarin, Monica	CA	GLEX-2021.4.1.6
Le Du, Michel	CA	GLEX-2021.3.2.3
Lee, Dukhang	CA	GLEX-2021.4.1.2
Leese, Mark	CA	GLEX-2021.2.4.2
Lei, Yingjun	CA	GLEX-2021.2.4.1
Lescouzères, Raphael	CA	GLEX-2021.4.1.5
Levenko, Alexander	CA	GLEX-2021.6.1.8
Levochkin, Petr	CA	GLEX-2021.6.2.3
Li, Chao	CA	GLEX-2021.11.1.11
Li, Haijin	CA	GLEX-2021.2.4.1
Li, Huijun	CA	GLEX-2021.2.4.1
Li, Weidan	A	GLEX-2021.11.3.4
Li, Yuan	CA	GLEX-2021.11.3.1
Li, Zhijie	CA	GLEX-2021.3.2.7
Liang, Yuying	A	GLEX-2021.3.1.6
Lin, Boxuan	CA	GLEX-2021.11.1.11
Link, AJ	A	GLEX-2021.12.1.12
Link, Mathias	CA	GLEX-2021.10.2.1
Lira Martinez, Manuel Alejandro	CA	GLEX-2021.1.3.9
Litvak, Maxim	CA	GLEX-2021.2.4.2
Liu, Conghui	A	GLEX-2021.12.1.5
LIU, Lei	A	GLEX-2021.2.5.1
LIU, Lei	A	GLEX-2021.2.5.5
Liu, Li	CA	GLEX-2021.2.5.1
LIU, LIAO	A	GLEX-2021.3.3.7
Liucci, Francesco	CA	GLEX-2021.2.2.5
Liucci, Francesco	CA	GLEX-2021.2.3.2
Lizy-Destrez, Stéphanie	CA	GLEX-2021.9.1.6
Lizy-Destrez, Stéphanie	A	GLEX-2021.2.4.9
Lizy-Destrez, Stéphanie	CA	GLEX-2021.2.5.2
Lo, Bernard Isaiah	CA	GLEX-2021.1.2.6
Loo, Chuen Chern	A	GLEX-2021.1.1.4
Lorda, Laurence	CA	GLEX-2021.11.1.1
Lorda, Laurence	CA	GLEX-2021.3.2.3
Loskutov, Dmitry	A	GLEX-2021.1.3.1
Louden, Emma	CA	GLEX-2021.10.2.6
Lovtsov, Alexander	CA	GLEX-2021.6.1.4
Luchitskaya, Elena	CA	GLEX-2021.1.1.12
Luchitskaya, Elena	A	GLEX-2021.8.1.6
Luitel, Bijaya	CA	GLEX-2021.4.2.2
Luzzi, Erica	CA	GLEX-2021.2.1.10
Łyziński, Karol	CA	GLEX-2021.8.1.12
Łyziński, Karol	CA	GLEX-2021.8.2.8

M

Name	Role	Paper
Madarieta, Mikel	CA	GLEX-2021.7.1.7
Maestro Redondo, Paloma	CA	GLEX-2021.7.1.16
Maiwald, Volker	CA	GLEX-2021.3.3.12
Makushenko, Yury	CA	GLEX-2021.9.1.4
Malakhov, Alexey	CA	GLEX-2021.3.2.1
Malenkov, Mikhail	A	GLEX-2021.2.2.1
Malhotra, Vinayak	A	GLEX-2021.7.1.3
Malhotra, Vinayak	A	GLEX-2021.7.5.9
Malinowska, Katarzyna	A	GLEX-2021.12.2.4
Malinowska, Katarzyna	A	GLEX-2021.10.2.5
Mamin, Rod	CA	GLEX-2021.2.2.4
Mamin, Rod	A	GLEX-2021.2.3.4
Mansurov, Oleg	A	GLEX-2021.7.5.2
Mardon, Austin	CA	GLEX-2021.8.1.9
Mariko, Teramoto	CA	GLEX-2021.7.1.14
Marinova, Alex	A	GLEX-2021.12.3.10
Markov, Yaroslav	CA	GLEX-2021.1.3.3
Martin, Dayl	CA	GLEX-2021.2.4.2
Martin, Sebastian	CA	GLEX-2021.2.1.10
Martin, Vincent	CA	GLEX-2021.3.2.3
Martino, Paolo	CA	GLEX-2021.4.1.4
Martino, Paolo	CA	GLEX-2021.4.1.6
Martín, Santiago	CA	GLEX-2021.11.2.4
Martínez, Graciano	CA	GLEX-2021.11.2.4
Martínez, Silvia	CA	GLEX-2021.11.2.4
Marzioli, Paolo	CA	GLEX-2021.11.1.10
Marzioli, Paolo	CA	GLEX-2021.7.1.5
Marzioli, Paolo	CA	GLEX-2021.7.5.4
Mas, José Miguel	CA	GLEX-2021.11.2.4
Massironi, Matteo	CA	GLEX-2021.2.1.10
Masson, Frederic	CA	GLEX-2021.3.3.12
Mathur, Shivam	A	GLEX-2021.3.3.11
Matveev, S.A.	CA	GLEX-2021.7.1.4
Matveev, S.A.	CA	GLEX-2021.7.2.10
Matveev, S.A.	A	GLEX-2021.7.3.8
May, Lisa	CA	GLEX-2021.9.1.4
Mayorova, Vera	CA	GLEX-2021.1.1.5
McCarthy, Smári	CA	GLEX-2021.2.3.11
McDougall, Thomas	CA	GLEX-2021.5.1.6
McGrath, Michael	A	GLEX-2021.1.4.4
McKevitt, James E.	A	GLEX-2021.5.1.6
McKevitt, James E.	A	GLEX-2021.5.2.8
McNaull, Aline	A	GLEX-2021.12.2.3
Mehra, Anshoo	A	GLEX-2021.7.4.5
Melograna, Catrina	A	GLEX-2021.2.5.3
Menshenin, Yaroslav	A	GLEX-2021.12.1.17
Meogrossi, Giada	CA	GLEX-2021.2.4.2
Meyer, Annaliese	CA	GLEX-2021.10.2.6
Miceli, Giuliana Elena	CA	GLEX-2021.2.5.2
Michel, Patrick	A	GLEX-2021.4.1.4
Michel, Patrick	CA	GLEX-2021.4.1.6
Michel, Patrick	CA	GLEX-2021.3.4.3
MICHEL, Paul	CA	GLEX-2021.11.1.17
Migas, Anna	CA	GLEX-2021.1.3.1
Mihai, Sergiu-Ştefan	A	GLEX-2021.7.5.3
MIHARA, Kazuya	CA	GLEX-2021.11.1.17
Milstein, Oren	A	GLEX-2021.10.2.10
Mingireanu, Florin	A	GLEX-2021.6.1.11
Mironovs, Viktors	CA	GLEX-2021.11.1.8
Mitrofanov, Igor	A	GLEX-2021.2.1.1
Mitrofanov, Igor	A	GLEX-2021.3.2.1
Mittler, Petra	CA	GLEX-2021.11.3.3
Miyamoto, Hirdy	CA	GLEX-2021.3.4.3
Mohanty, Joshit	CA	GLEX-2021.7.4.5
Mohanty, Maya	A	GLEX-2021.8.3.11
Mohite, Akshat	CA	GLEX-2021.5.2.2
Moisheev, Alexander	CA	GLEX-2021.2.2.1
Monaco, Federico	CA	GLEX-2021.7.5.1
Monakhov, Dmitry	A	GLEX-2021.7.3.4
Monakhov, Dmitry	CA	GLEX-2021.7.5.2
Mondal, Riyabrata	CA	GLEX-2021.8.2.10
Mondal, Riyabrata	CA	GLEX-2021.3.3.5
Mondal, Riyabrata	A	GLEX-2021.3.3.6
Moon, Hong-Kyu	A	GLEX-2021.4.1.2
Morello, Rosario	CA	GLEX-2021.7.1.1
Morlier, Joseph	CA	GLEX-2021.2.5.2
Morozov, Yegor	CA	GLEX-2021.11.2.9
Morozova, Julia	CA	GLEX-2021.8.1.11
Moseman, Travis	CA	GLEX-2021.3.2.10
Moskatiniev, Ivan	CA	GLEX-2021.2.3.8
Mouallem, Wissam	A	GLEX-2021.7.3.1
Moumni, Fahd	A	GLEX-2021.11.1.17
Mozharov, Igor	CA	GLEX-2021.11.1.13
Mulero, Manuel	CA	GLEX-2021.6.1.8
Munoz, Pierre	CA	GLEX-2021.12.1.15
Munoz Fernandez, Michela	A	GLEX-2021.3.1.1
Munusamy, Raja	CA	GLEX-2021.5.1.11
Murashko, Anastasia	CA	GLEX-2021.9.1.4
Murdoch, Naomi	CA	GLEX-2021.3.4.3
Muriuki, Sharon	A	GLEX-2021.12.2.12
Murtazin, Rafail	A	GLEX-2021.2.4.4
Musilova, Michaela	CA	GLEX-2021.12.1.9
Musilova, Michaela	CA	GLEX-2021.2.1.13
Musilova, Michaela	CA	GLEX-2021.11.2.1
Musilova, Michaela	A	GLEX-2021.2.2.8
Muñoz Elorza, Iñigo	A	GLEX-2021.6.1.8
Myasishcheva, Galina	CA	GLEX-2021.1.1.5

N

Name	Role	Paper
Nabben, Anneke	CA	GLEX-2021.2.4.5
Naderi, Mahyar	A	GLEX-2021.6.2.5
Nadezhin, Mikhail	CA	GLEX-2021.7.2.10
Nagasaki, Shuji	CA	GLEX-2021.7.3.9
Naik, Heet	A	GLEX-2021.9.1.7

Naik, Heet	CA	GLEX-2021.5.2.2
Nakagawa, Hiromu	CA	GLEX-2021.3.2.3
Nakamura, Tomoki	CA	GLEX-2021.3.2.3
Nardi, Vito Antonio	A	GLEX-2021.7.1.1
Nasr, Maya	A	GLEX-2021.10.2.6
Nazarov, Vladimir	A	GLEX-2021.7.1.15
Nazarov, Vladimir	A	GLEX-2021.1.3.3
Nazirov, Ravil	CA	GLEX-2021.1.3.3
Nazirov, Ravil	CA	GLEX-2021.4.1.1
Nazirov, Ravil	CA	GLEX-2021.5.2.1
Nelson, Richard	CA	GLEX-2021.5.1.12
Nergaard, Kim	CA	GLEX-2021.2.1.10
Nichiporuk, Igor	A	GLEX-2021.8.3.7
Nicollier, Claude	CA	GLEX-2021.11.1.6
Niewęgłowski, Krzysztof	A	GLEX-2021.1.2.8
Nikulin, A.G.	CA	GLEX-2021.7.3.4
Nizami, Mohammed Abrar	CA	GLEX-2021.7.1.3
Nizami, Mohammed Abrar	CA	GLEX-2021.7.5.9
Nodado, Kirchelle Ann Mae	CA	GLEX-2021.1.2.6
Northstar, Marc	A	GLEX-2021.3.2.11
Nosikova, Inna	CA	GLEX-2021.8.1.1
Novikov, Valery	CA	GLEX-2021.8.1.3
Novikov, Valery	CA	GLEX-2021.8.1.11
Novoseltsev, Dmitry	A	GLEX-2021.6.1.6
Nudurupati, Abhay Kaushik	CA	GLEX-2021.11.2.10
Nyawacha, Seth	A	GLEX-2021.12.1.8

O

Name	Role	Paper
O'Brien, Dennis	A	GLEX-2021.1.1.6
O'Neill, Eoin	CA	GLEX-2021.8.2.2
Oberst, Jürgen	CA	GLEX-2021.3.3.12
Ochkov, Oleg	CA	GLEX-2021.8.2.11
Ochoa, Jon	CA	GLEX-2021.10.1.2
Oesterle, Aaron	A	GLEX-2021.12.1.7
Offord (Phillips), Nelly	A	GLEX-2021.2.2.5
Oksbøl Therkelsen, Magnus	CA	GLEX-2021.2.2.7
Oleg, Kotov	A	GLEX-2021.1.1.12
Olivares-Mendez, Miguel	CA	GLEX-2021.10.1.2
Oriol, Stephane	CA	GLEX-2021.3.3.12
Orlov, Oleg	CA	GLEX-2021.11.2.7
Ostrovskiy, Nikolay	A	GLEX-2021.5.2.5
Ottonello, Alberto	CA	GLEX-2021.3.1.9
Ouyang, Theodore	A	GLEX-2021.7.2.3
Ozaki, Naoya	CA	GLEX-2021.3.1.6

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Name	Role	Paper
Pal Chowdhury, Rajarshi	CA	GLEX-2021.10.2.10
Pan, Shunliang	CA	GLEX-2021.11.3.1
Panarotto, Massimo	CA	GLEX-2021.5.1.8
PANCHAL, RAJ	CA	GLEX-2021.4.2.2
Pandele, Alexandru	CA	GLEX-2021.7.5.3
Pandi Perumal, Raja	A	GLEX-2021.10.1.8
Papsidero, Lindsay	A	GLEX-2021.1.4.5
Pareek, Yash	CA	GLEX-2021.3.2.5
Parisi, Alessio	CA	GLEX-2021.3.1.9
Parizel, Paul M	CA	GLEX-2021.8.1.1
Park, Sang-Young	CA	GLEX-2021.4.1.2
Patil, Dipti	CA	GLEX-2021.2.1.16
Paul, Robert	CA	GLEX-2021.3.1.4
Paul, Robert	A	GLEX-2021.3.2.2
PAUL-SIMON, Alexandre	CA	GLEX-2021.11.1.17
Pavel, Arkhipov	CA	GLEX-2021.6.2.7
Pavithra_pathy, Pavithra	CA	GLEX-2021.4.2.2
Pavlova, Elena	A	GLEX-2021.4.2.3
Pawar, Atharva	CA	GLEX-2021.7.4.5
Payler, Samuel	CA	GLEX-2021.2.1.10
Pechenkova, Ekaterina	CA	GLEX-2021.8.1.1
Pereira, Aaron	CA	GLEX-2021.2.1.10
Permatasari, Yunita	A	GLEX-2021.12.2.11
Perret, Alain	CA	GLEX-2021.4.1.7
Perrier, Ioana-Roxana	CA	GLEX-2021.11.2.1
PERRIER, IOANA-ROXANA	CA	GLEX-2021.11.2.8
PERRIER, IOANA-ROXANA	A	GLEX-2021.11.3.5
Perrot, Yann	CA	GLEX-2021.2.2.12
Petermeijer, Bastiaan	A	GLEX-2021.2.4.5
Petrovichev, Victor	CA	GLEX-2021.8.1.1
Petrukovich, Anatoli	CA	GLEX-2021.2.1.1
Piergentili, Fabrizio	CA	GLEX-2021.11.1.10
Piergentili, Fabrizio	CA	GLEX-2021.7.1.5
Piergentili, Fabrizio	CA	GLEX-2021.7.5.4
Pignolet, Guy	A	GLEX-2021.12.1.15
Pignolet, Guy	CA	GLEX-2021.4.1.7
Pirrotta, Simone	CA	GLEX-2021.1.1.2
Podolsky, Théo	CA	GLEX-2021.11.2.8
Podolsky, Théo	CA	GLEX-2021.11.3.5
Pokładnik, Ryszard	CA	GLEX-2021.8.1.12
Pokładnik, Ryszard	CA	GLEX-2021.8.2.8
Poliacek, Matej	CA	GLEX-2021.3.1.11
Poliacek, Matej	A	GLEX-2021.11.2.3
Poliacek, Matej	A	GLEX-2021.5.2.3
Popel, Sergey	CA	GLEX-2021.2.3.10
Popov, Michael	A	GLEX-2021.8.3.12
Pospisil, Stanislav	CA	GLEX-2021.3.3.12
Posselt, Bonnie	CA	GLEX-2021.11.2.5
POUGET, Thibaut	A	GLEX-2021.5.1.3
Pourdaraei, Sara	CA	GLEX-2021.6.2.5
Pouwels, Charlotte	CA	GLEX-2021.11.2.1
Pozo, Borja	A	GLEX-2021.7.1.7
Pozzobon, Riccardo	CA	GLEX-2021.2.1.10
Prado, Jean-Yves	A	GLEX-2021.4.1.7
Pretto, Isacco	A	GLEX-2021.10.1.1
Prinetto, Jacopo	CA	GLEX-2021.10.1.1
Priyaranga Silva, E. Isuru	CA	GLEX-2021.8.3.1
Prokopenko, Oleg	CA	GLEX-2021.1.3.3
Prudnik, Denis	A	GLEX-2021.12.2.9
Punzo, Francesco	A	GLEX-2021.7.3.5
Pupkov, Maxim	A	GLEX-2021.4.1.1
Purvis, Benjamin	A	GLEX-2021.7.1.8
Purvis, Cyndl	CA	GLEX-2021.7.1.8
Pérez Cámara, Flavia	CA	GLEX-2021.7.1.16

Q

Name	Role	Paper
Qedar, Ran	CA	GLEX-2021.7.1.9
Quizzagan, Harlee	A	GLEX-2021.1.2.6

R

Name	Role	Paper
R, Suraj	CA	GLEX-2021.3.2.5
Racheru, Mihai	CA	GLEX-2021.7.5.3
Ramanan, R V	CA	GLEX-2021.5.1.4
Ramos, Gonzalo	A	GLEX-2021.11.2.4
Ramuš Cvetkovič, Iva	A	GLEX-2021.12.1.14
Ranjan Saxena, Neelesh	A	GLEX-2021.2.1.8
Ranjan Saxena, Neelesh	A	GLEX-2021.2.4.6
Ranjan Saxena, Neelesh	A	GLEX-2021.2.5.7
Rao, Sandhya	A	GLEX-2021.7.2.11
Rathi, Krishna Dev	A	GLEX-2021.3.4.6
Rathod, Akash	CA	GLEX-2021.7.1.17
Ratiu, Ovidiu	A	GLEX-2021.7.5.7
Ratushnyy, Andrey	A	GLEX-2021.8.2.3
Ray, Arka	A	GLEX-2021.12.2.10
Raykunov, Konstantin	A	GLEX-2021.2.2.9
Raykunov, Konstantin	A	GLEX-2021.2.3.3
Reddy Pappula, Bharath Simha	CA	GLEX-2021.5.1.6
Redlich, Daniel	A	GLEX-2021.3.1.4
Redlich, Daniel	CA	GLEX-2021.3.2.2
Rees, Jean-Michel	CA	GLEX-2021.3.2.3
Rehnberg, Lucas	CA	GLEX-2021.11.2.5
Reibaldi, Giuseppe	A	GLEX-2021.2.3.5
Reiss, Philipp	CA	GLEX-2021.2.4.2
Renev, Maxim	CA	GLEX-2021.6.2.7
Reyes Mantilla, Camilo Andres	A	GLEX-2021.4.2.1
Reynders, Martin	CA	GLEX-2021.1.1.7
Reynders, Martin	CA	GLEX-2021.3.3.12
Rezende, Julio	CA	GLEX-2021.8.2.10
Rezende, Julio	A	GLEX-2021.3.3.5
Rezende, Julio	CA	GLEX-2021.3.3.6
Rich, Belinda	CA	GLEX-2021.2.1.11
Richter, Lutz	CA	GLEX-2021.10.1.1
Richter, Lutz	A	GLEX-2021.2.3.7
Richter, Martin	CA	GLEX-2021.3.3.12
Rist, Amber	CA	GLEX-2021.3.2.10
Ritter, Scott	A	GLEX-2021.8.2.2
Riviere, Alice	A	GLEX-2021.12.1.6
Roberts, Donna	CA	GLEX-2021.8.1.1
Rocard, Francis	CA	GLEX-2021.3.2.3
Rodin, Alexander	CA	GLEX-2021.7.5.2
Rodrigo, María Teresa	CA	GLEX-2021.11.2.4
Rogers, Henk	CA	GLEX-2021.12.1.9
Rogers, Henk	CA	GLEX-2021.11.2.1
Rogers, Henk	CA	GLEX-2021.2.2.8
Roma, Ilaria	CA	GLEX-2021.7.3.5
Romanov, Sergey	CA	GLEX-2021.8.2.9
Romanov, Sergey	CA	GLEX-2021.8.3.10
Romanov-Chernigovsky, Ignaty	A	GLEX-2021.7.1.9
Romero, Marco	CA	GLEX-2021.4.2.2
Rometsch, Flavie Aditya Annick Suzanne Davida Tohotaua	CA	GLEX-2021.2.4.5
Rossi, Angelo Pio	CA	GLEX-2021.2.1.10
Rotola, Giuliana	CA	GLEX-2021.10.2.6
Rougerie, Jacques	CA	GLEX-2021.2.1.12
Roux, Lucille	CA	GLEX-2021.7.4.8
Roy, Tanishka	CA	GLEX-2021.11.2.10
Roy Chowdhury, Priyanka	CA	GLEX-2021.8.3.1
Rudakova, Olga	CA	GLEX-2021.2.3.3
Rukavishnikov, Ilya	CA	GLEX-2021.8.1.1
Rukavishnikov, Ilya	CA	GLEX-2021.11.2.7
Rukavishnikov, Ilya	CA	GLEX-2021.8.3.3
Rull, Fernando	CA	GLEX-2021.3.4.3
Rumshiskaya, Alena	CA	GLEX-2021.8.1.1
Rusconi, Andrea	CA	GLEX-2021.2.4.2
Rustamov, Rustam	A	GLEX-2021.11.3.7
Ryabkin, Alexandr	CA	GLEX-2021.8.3.10
Ryazanskiy, Sergey	CA	GLEX-2021.8.3.3
Ryumin, Oleg	CA	GLEX-2021.8.1.2
Rüede, Anne-Marlene	CA	GLEX-2021.10.1.9

S

Name	Role	Paper
S P, Dr. Parvathi	A	GLEX-2021.5.1.4
Sabbavarapu, Sai Ganesh	CA	GLEX-2021.7.4.5
Sakay, Danilo	CA	GLEX-2021.1.1.3
Salnikov, Nikolay	A	GLEX-2021.8.1.13
Salunke, Dhanush	A	GLEX-2021.5.2.2
Samanga, Ruvimbo	A	GLEX-2021.1.1.10
Samanga, Ruvimbo	A	GLEX-2021.2.1.6
Samanga, Ruvimbo	A	GLEX-2021.1.2.4
Samanga, Ruvimbo	A	GLEX-2021.7.2.8
Sanchez Aguirre, Lizeth	A	GLEX-2021.12.1.3
Sanders, Wyatt	CA	GLEX-2021.10.2.10
Sangiovanni, Guido	CA	GLEX-2021.2.4.2
Sanjurjo-Rivo, Manuel	CA	GLEX-2021.7.4.4
Santoni, Fabio	CA	GLEX-2021.11.1.10
Santoni, Fabio	CA	GLEX-2021.7.1.5
Santoni, Fabio	CA	GLEX-2021.7.5.4
Santra, Shreya	CA	GLEX-2021.1.2.6
Sarkar, Shreya	A	GLEX-2021.2.2.6
Sateesh, Dhanisha	CA	GLEX-2021.4.2.2
Sateesh, Vinay	CA	GLEX-2021.3.3.3
Sato, Naoki	CA	GLEX-2021.1.1.2
Satoh, Naoki	CA	GLEX-2021.1.2.7
Saunders, Chris	CA	GLEX-2021.2.2.5
Sauro, Francesco	CA	GLEX-2021.2.1.10
Saveko, Alina	CA	GLEX-2021.11.2.7
Saveko, Alina	A	GLEX-2021.8.3.3
Savelyeva, Mila	A	GLEX-2021.6.1.2
Savino, Raffaele	CA	GLEX-2021.7.3.5
Sawyer, Eric	A	GLEX-2021.3.2.3
Scatteia, Luigi	A	GLEX-2021.2.2.12
Schanz, Lars	CA	GLEX-2021.3.3.12
Schervan, Thomas A.	A	GLEX-2021.7.3.2
Schild, Timon	CA	GLEX-2021.8.2.2
Schlacht, Irene Lia	CA	GLEX-2021.11.2.1
Schlutz, Juergen	CA	GLEX-2021.2.4.5
Schlutz, Juergen	A	GLEX-2021.11.3.3
Schmidt-Tedd, Bernhard	CA	GLEX-2021.1.1.7
Schmidt-Tedd, Bernhard	CA	GLEX-2021.3.3.12
Schmiel, Tino	CA	GLEX-2021.7.2.1
Schmitz, Peter	CA	GLEX-2021.1.3.3
Schneegans, Simon	CA	GLEX-2021.2.1.7
Schoenmaekers, Catho	CA	GLEX-2021.8.1.1
Schoonejans, Philippe	CA	GLEX-2021.2.1.10
Schröder, Kai-Uwe	CA	GLEX-2021.7.3.2
Schwartz, Guido	A	GLEX-2021.12.3.11
Schwarz, Benjamin	CA	GLEX-2021.2.2.5
Schwarz, Shirit	CA	GLEX-2021.10.2.10
Scordamaglia, Valerio	CA	GLEX-2021.7.1.1
Scott, David	CA	GLEX-2021.2.2.1
Sedykh, Oleg	CA	GLEX-2021.5.1.1
Sefton-Nash, Elliot	CA	GLEX-2021.2.4.2
Selaru, Dan	CA	GLEX-2021.7.5.3
Self, Hamish	CA	GLEX-2021.1.2.6
Semenkin, Alexander	CA	GLEX-2021.3.3.12
Semenkin, Alexander	A	GLEX-2021.6.2.1
Semenkin, Alexander V.	CA	GLEX-2021.1.1.7
Seminari, Simon	CA	GLEX-2021.1.1.1
Senese, Samuel	CA	GLEX-2021.3.1.4
Senese, Samuel	CA	GLEX-2021.3.2.2
Sepehrband, Farshid	CA	GLEX-2021.8.1.1
Seweryn, Barbara	CA	GLEX-2021.8.2.8
Shan, Yinglei	A	GLEX-2021.1.4.3
Sharma, Shreyansh	CA	GLEX-2021.7.1.13
Sharma, Shreyansh	CA	GLEX-2021.3.4.6

Sharma, Vikrant	A	GLEX-2021.2.5.4
Sharma, Yukta	A	GLEX-2021.9.1.11
Shashkov, Andrey	CA	GLEX-2021.6.1.4
Shef, Kirill	CA	GLEX-2021.8.1.11
Sheini Dashtgol, Farnoosh	CA	GLEX-2021.2.1.9
Shekhar, Saumya	CA	GLEX-2021.7.1.3
Shekhar, Saumya	CA	GLEX-2021.7.5.9
SHELKAR, ROHIT	CA	GLEX-2021.7.1.17
Sheridan, Simon	CA	GLEX-2021.2.3.7
Shihora, Siddharth	CA	GLEX-2021.2.2.12
Shin, Ban-Sok	A	GLEX-2021.3.4.7
Shirobokov, Oleg	A	GLEX-2021.7.2.10
Shirshov, A.D.	CA	GLEX-2021.7.3.8
Shishkin, Nikita	A	GLEX-2021.2.1.18
Shurshakov, Vyacheslav	A	GLEX-2021.9.1.12
Shutin, Dmitriy	CA	GLEX-2021.3.4.7
Sidorenko, Daria	CA	GLEX-2021.8.1.3
Sierra, Mª. Ángeles	CA	GLEX-2021.11.2.4
Sijbers, Jan	CA	GLEX-2021.8.1.1
Sim, Chae Kyung	CA	GLEX-2021.4.1.2
Simbiryov, Nikita	CA	GLEX-2021.4.1.1
Simmons, Kevin	CA	GLEX-2021.7.1.8
Simmons, Kevin	CA	GLEX-2021.7.2.3
Simmons, Kevin	CA	GLEX-2021.7.2.6
Simmons, Kevin	CA	GLEX-2021.1.3.5
Simmons, Kevin	CA	GLEX-2021.12.3.12
Simmons, Kevin	CA	GLEX-2021.8.3.11
Simon, Xavier	CA	GLEX-2021.3.2.10
Simonov, Alexander	CA	GLEX-2021.5.2.1
Siméon, Jean-Luc	A	GLEX-2021.5.1.9
Singh, Jaspreet	CA	GLEX-2021.5.1.6
Singh, Nandini	CA	GLEX-2021.4.2.2
Singh-Derewa, Chrishma	A	GLEX-2021.11.1.4
Singh-Derewa, Chrishma	A	GLEX-2021.2.1.9
Singh-Derewa, Chrishma	A	GLEX-2021.7.3.3
Sinitsyn, Valentin	CA	GLEX-2021.8.1.1
Sinopoli, Sofia	CA	GLEX-2021.5.2.3
Sirikan, Nityaporn	CA	GLEX-2021.11.2.1
Sitnikova, Anna	CA	GLEX-2021.12.1.9
Sitnikova, Anna	CA	GLEX-2021.11.2.1
Sitnikova, Anna	A	GLEX-2021.2.3.11
Slobodzian, Nikita	CA	GLEX-2021.7.1.4
Slobodzian, Nikita	CA	GLEX-2021.7.2.10
Smith, Jacob	CA	GLEX-2021.11.2.3
Smolyanina, Svetlana	CA	GLEX-2021.8.2.11
SOARES, SERGIO	A	GLEX-2021.7.1.6
Sokolova, Olga	A	GLEX-2021.12.1.18
Soler, Manuel	CA	GLEX-2021.7.4.4
Solodukhin, Alexander	CA	GLEX-2021.3.3.12
Solodukhin, Alexander E.	CA	GLEX-2021.1.1.7
Solov'ev, Sergey	CA	GLEX-2021.10.2.9
Soloviev, Vladimir	CA	GLEX-2021.2.4.4
Sonare, Ashwin	CA	GLEX-2021.7.1.17
Soria Salinas, Álvaro Tomás	A	GLEX-2021.10.1.2
Soriano, Carlos	CA	GLEX-2021.7.1.7
Souza, Davi Alves Feitosa	CA	GLEX-2021.8.2.10
Souza, Davi Alves Feitosa	CA	GLEX-2021.3.3.5
Spagnulo, Marcello	CA	GLEX-2021.7.3.5
Spilkin, Amanda	CA	GLEX-2021.11.2.1
SRI SAI CHARITH, DANDAMUDI	CA	GLEX-2021.3.2.5
Sridharan, Saish	CA	GLEX-2021.7.1.9
Srivastava, Smiriti	A	GLEX-2021.4.2.2
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Steimle, Christian	CA	GLEX-2021.9.1.2
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Stellatou, Sofia	A	GLEX-2021.2.1.2
Stern, Claudia	CA	GLEX-2021.8.2.2
Stevens, Paul	CA	GLEX-2021.2.2.5
Strakhov, S.Yu.	CA	GLEX-2021.7.3.8
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Sukhanov, Alexander	CA	GLEX-2021.5.1.5
Sukhanov, Alexander	CA	GLEX-2021.5.1.7
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Sunaert, Stefan	CA	GLEX-2021.8.1.1
Suriano, Serena	A	GLEX-2021.10.1.9
Surzhikov, Sergey	CA	GLEX-2021.3.1.2
Surzhikov, Sergey	A	GLEX-2021.7.4.7
Sutram, Parthasarathi	CA	GLEX-2021.5.2.2
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Sweeting, Sir Martin	CA	GLEX-2021.2.2.5
Sysoev, Valentin K.	CA	GLEX-2021.2.3.8
Sznitman, Raphael	CA	GLEX-2021.8.2.2
Szolucha, Anna	A	GLEX-2021.12.3.1

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Tajmar, Martin	CA	GLEX-2021.7.2.1
Takla, Mina	CA	GLEX-2021.4.2.1
Talibzade, Rahim	CA	GLEX-2021.10.2.6
Tamada, Chandan Varma	CA	GLEX-2021.7.4.5
Tamilarasu, Reenah	A	GLEX-2021.1.2.5
Tan, Ernest	CA	GLEX-2021.1.1.3
Tanasyuk, Pavlo	CA	GLEX-2021.2.2.4
Tardivel, Simon	CA	GLEX-2021.3.1.5
Tardivel, Simon	CA	GLEX-2021.3.4.3
Tatiana, Shigueva	CA	GLEX-2021.11.2.7
Tattusch, Tim	CA	GLEX-2021.3.1.4
Tattusch, Tim	CA	GLEX-2021.3.2.2
Tattusch, Tim	CA	GLEX-2021.2.3.7
Teran Espinoza, Antonio	CA	GLEX-2021.7.1.10
THOMABRE, BHUSHAN	CA	GLEX-2021.7.1.3
THOMABRE, BHUSHAN	CA	GLEX-2021.7.5.9
Thomas, Chesler	CA	GLEX-2021.9.1.11
Thomas, Chesler	A	GLEX-2021.11.2.10
Thonta, Durga Prasad	CA	GLEX-2021.7.4.5
Tian, Shuaihu	CA	GLEX-2021.11.1.11
Tikhonova, Galina	CA	GLEX-2021.8.1.7
Tilvaldyev, Shehret	A	GLEX-2021.1.3.9
Tinsley, Tim	CA	GLEX-2021.3.3.12
Titov, Evgeny	CA	GLEX-2021.2.3.12
Titov, Maxim	CA	GLEX-2021.11.1.13
Tittayanulak, Kanapat	CA	GLEX-2021.3.1.11
Tiwari, Mandavi	CA	GLEX-2021.7.4.5
Tkachenko, Ivan	A	GLEX-2021.7.1.11
Toffoletti, Sara	A	GLEX-2021.3.2.12
TOKSÖZ, ITIR	A	GLEX-2021.1.2.9
Toldbo, Christina	A	GLEX-2021.2.2.7
Tomilovskaya, Elena	CA	GLEX-2021.2.1.18
Tomilovskaya, Elena	CA	GLEX-2021.8.1.1
Tomilovskaya, Elena	A	GLEX-2021.11.2.7
Tomilovskaya, Elena	CA	GLEX-2021.8.3.3
Tosi, Maria Cristina	CA	GLEX-2021.3.3.12
Traseira Pedraz, Carmen	A	GLEX-2021.8.1.10
Trautner, Roland	CA	GLEX-2021.2.4.2
Tret'yakov, Vladislav	CA	GLEX-2021.2.1.1
Trifonov, Sergey	CA	GLEX-2021.11.2.9
Trushlyakov, Valeriy	A	GLEX-2021.6.2.2
Trushlyakov, Valeriy	A	GLEX-2021.7.5.6
Trzos, Arkadiusz	CA	GLEX-2021.8.1.12
Trzos, Arkadiusz	CA	GLEX-2021.11.2.6
Trzos, Arkadiusz	A	GLEX-2021.8.2.8
Trzos, Arkadiusz	CA	GLEX-2021.8.3.4
Tumlinson, Rick	CA	GLEX-2021.12.1.7
Tuohy, Eóin	CA	GLEX-2021.8.2.2
Turkina, Olesya	A	GLEX-2021.12.1.11
Tverie, Oleg	CA	GLEX-2021.6.2.3
Tyrou, Véronique	CA	GLEX-2021.3.2.3
Törjék, Noel	CA	GLEX-2021.2.2.7

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Name	Role	Paper
Ueno, Hiroshi	CA	GLEX-2021.1.1.3
Ulamec, Stephan	CA	GLEX-2021.4.1.4
Ulamec, Stephan	CA	GLEX-2021.4.1.6
Ulamec, Stephan	A	GLEX-2021.3.4.3
Urbansky, Vladislav	CA	GLEX-2021.6.2.2
Usanova, Nonna	CA	GLEX-2021.8.1.11
Ushakov, Igor	A	GLEX-2021.8.1.7
Ushakov, N.N.	CA	GLEX-2021.7.3.4
Ushakova, Sofya	A	GLEX-2021.11.2.9
Usherenko, Yulia	A	GLEX-2021.11.1.8
Usov, Vitali	CA	GLEX-2021.7.4.3
Uvarov, Valentin	CA	GLEX-2021.7.5.2

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Name	Role	Paper
V Prasad, Ditaujas	CA	GLEX-2021.3.3.3
Valentirova, Tamara	CA	GLEX-2021.11.1.13
Valverde Guijarro, Ángel Luis	CA	GLEX-2021.11.2.4
Van Heerden, Alexander	CA	GLEX-2021.8.1.18
Van Heerden, Alexander	A	GLEX-2021.8.3.5
van Linden Tol, Aoife	CA	GLEX-2021.12.1.9
Van Ombergen, Angelique	CA	GLEX-2021.8.1.1
Vandecruys, Maarten	CA	GLEX-2021.8.3.9
Vandenbussche, Bart	CA	GLEX-2021.11.2.4
Vassilieva, Galina	CA	GLEX-2021.1.1.12
Vassilieva, Galina	CA	GLEX-2021.8.1.3
Vassilieva, Galina	CA	GLEX-2021.8.1.11
Vazquez, Adolfo	CA	GLEX-2021.2.1.7
Velho, Rochelle	CA	GLEX-2021.8.1.10
Velho, Rochelle	CA	GLEX-2021.11.2.5
Velichko, Vladimir	CA	GLEX-2021.11.2.9
Venkatesan, Jayakumar	A	GLEX-2021.10.1.7
Venkatesan, Jayakumar	CA	GLEX-2021.1.4.6
Ventura-Traveset, Javier	CA	GLEX-2021.2.3.2
Verma, Mrityunjai	CA	GLEX-2021.11.1.18
Vermeulen, Nancy	CA	GLEX-2021.11.2.1
Vernazza, Pierre	CA	GLEX-2021.3.4.3
Vernillo, Paolo	CA	GLEX-2021.7.3.5
Vijaykumar, Arjun	CA	GLEX-2021.4.2.2
Villa-Massone, Julien	CA	GLEX-2021.11.2.1
Vinokhodova, Alla	CA	GLEX-2021.8.1.2
Vishwakarma, Kirti	A	GLEX-2021.5.1.11
Vitaly, Savelov	CA	GLEX-2021.6.2.7
Voegt, Stefan	CA	GLEX-2021.4.1.5
Volkova, Tatiana	A	GLEX-2021.11.1.6
Voos, Holger	CA	GLEX-2021.10.1.8
Voronkov, Yuri	CA	GLEX-2021.8.1.7
Vázquez, César Alejandro Torrealba	CA	GLEX-2021.2.2.7
Vílchez Llamazares, Enol	CA	GLEX-2021.9.1.6

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Name	Role	Paper
Waltemathe, Michael	CA	GLEX-2021.11.2.1
Waltemathe, Michael	A	GLEX-2021.12.2.8
Wang, Bing	CA	GLEX-2021.11.1.11
Wang, Jia	A	GLEX-2021.3.2.9
Ward, Eric	A	GLEX-2021.7.4.9
Weert, Annelotte	CA	GLEX-2021.11.2.1
Wei, Rao	CA	GLEX-2021.7.1.2
WEISS, Peter	A	GLEX-2021.2.1.12
Welch, Owen	CA	GLEX-2021.7.2.6
Wijeratne, Harini Shanika	CA	GLEX-2021.1.2.6
Wiser, Lindsey	CA	GLEX-2021.10.2.6
Wood, Steven	A	GLEX-2021.12.1.2
Wormnes, Kjetil	A	GLEX-2021.2.1.10
Worms, Jean-Claude	CA	GLEX-2021.3.3.12
Wouters, Sophie	CA	GLEX-2021.8.1.10
Wuyts, Floris	A	GLEX-2021.8.1.1

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Name	Role	Paper
Xu, Jingyao	CA	GLEX-2021.11.1.11
Xu, Naining	CA	GLEX-2021.8.1.10
Xu, Zongfei	A	GLEX-2021.11.3.2
Xue, Huimin	CA	GLEX-2021.11.1.11

Y

Name	Role	Paper
Yakovenko, N.G.	CA	GLEX-2021.7.3.8
Yakubetz, Danila	CA	GLEX-2021.8.2.3
Yang, Hongu	CA	GLEX-2021.4.1.2
Yaremchuk, Valeriy	CA	GLEX-2021.11.1.13
Yatsukhno, Dmitry	A	GLEX-2021.3.1.2
Ying, Peng	A	GLEX-2021.11.1.9
Yonemoto, Koichi	A	GLEX-2021.6.1.7
Yoshimura, Yasuhiro	CA	GLEX-2021.7.3.9
Yudintsev, Vadim	CA	GLEX-2021.6.2.2
Yudintsev, Vadim	CA	GLEX-2021.7.5.6
Yurgin, Alexey	CA	GLEX-2021.8.2.9
Yurgin, Alexey	CA	GLEX-2021.8.3.10

Z

Name	Role	Paper
Zakharov, Alexander	CA	GLEX-2021.2.3.10
Zara, Maura	CA	GLEX-2021.12.3.10
Zasova, Ludmilla	CA	GLEX-2021.5.2.1
Zelenyi, Lev	CA	GLEX-2021.2.1.1
Zelenyi, Lev M.	A	GLEX-2021.2.3.10
Zhang, Andrew	CA	GLEX-2021.7.2.3
Zhang, Anthony	CA	GLEX-2021.7.2.3
Zhang, Li	A	GLEX-2021.9.1.3
Zhang, Lucretia	A	GLEX-2021.10.1.11
Zhang, Ming	A	GLEX-2021.2.4.1
Zhang, Tao	CA	GLEX-2021.3.1.3
Zhang, Yafei	CA	GLEX-2021.11.3.1
Zhao, Li	A	GLEX-2021.11.1.11
Zhao, Zheng	CA	GLEX-2021.11.3.1
Zheleznyakov, Alexandr	CA	GLEX-2021.8.2.9

Zheleznyakov, Alexandr	A	GLEX-2021.8.3.10
Zheng, Wei	CA	GLEX-2021.11.3.1
Zhivodernikov, Ivan	A	GLEX-2021.8.1.4
Zhukov, Yu.A.	CA	GLEX-2021.7.1.4
Zhuravleva, Olga	CA	GLEX-2021.8.3.7
Zhuravleva, Tatyana	CA	GLEX-2021.8.3.7
Zoller, Andreas	CA	GLEX-2021.11.2.5
zu Eulenburg, Peter	CA	GLEX-2021.8.1.1
Zubko, Vladislav	CA	GLEX-2021.4.1.1
Zubko, Vladislav	CA	GLEX-2021.5.1.5
Zubko, Vladislav	A	GLEX-2021.5.1.7
Zubko, Vladislav	CA	GLEX-2021.5.2.1
Zuccotti, Chiara	CA	GLEX-2021.5.2.3

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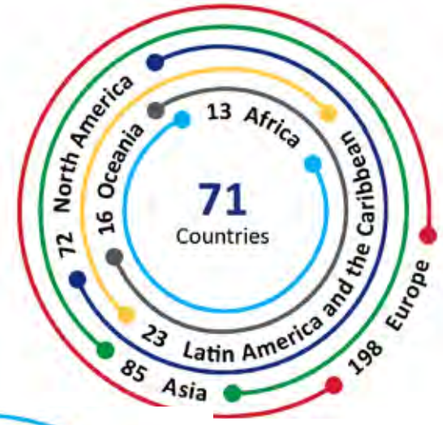

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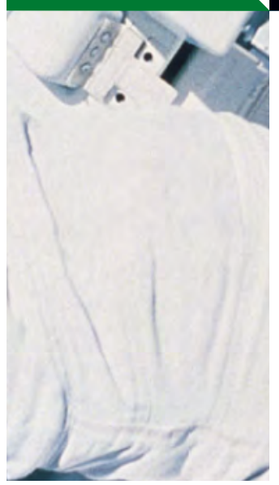

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