

Statement of ESA

By Gordon Campbell

Head of Enterprise, Science, Applications and Climate Department, European Space Agency (ESA)

Distinguished colleagues,

Thank you for the opportunity to participate in this important event. As an inter-governmental space agency, ESA is well placed to support the objectives of this meeting given complete range of space domains addressed by ESA and its international reach in support of our Member States

In the present circumstances, the primary ESA space capability of relevance to the Mediterranean region is Earth Observation and many delegates have already highlighted their interest in this domain. I would like to emphasize that the ESA Earth Observation contribution to moving forwards with the Mediterranean objectives highlighted today requires working with both “Traditional space” and “New Space”

Within traditional space, ESA is developing and operating a range of satellites such as SMOS, FLEX and BIOMASS that will provide unique measurements to better understand Earth system dynamics in the Mediterranean linked to disciplines such as land surface change/land degradation and water cycle processes. In addition, the development of satellites such as the Sentinels and increasingly meteorological missions such as MSG and MTG enable the combination of precision LEO measurements with fast revisit meteorological data to provide unique monitoring and assessment capabilities for environmental and security policies in the region. Finally in “downstream exploitation”, ESA is at the forefront of developments (together with our international partners) to better use EO for the achievement and monitoring of the Sustainable Development Goals as well as embedding EO deeper into leading edge Earth science and stimulating the development of new applications and commercial services to complement our Member States activities in strengthening the Mediterranean economy

Working with NewSpace partners ESA is fostering innovation, supporting sustainable development and stimulating the growth of innovative industrial capabilities for the entire space value chain for the Mediterranean region. In particular, within ESA we have on-going and planned activities directly targeting Mediterranean issues including:

- Fragile habitats and ecosystems, developing systems and applications to support enhanced characterization of climate and anthropogenic stress and support their sustainable management
- Security in its widest sense, where both new small satellites, developments in AI techniques and advances in data analytics and processing (including multi-source fusion) are enabling step advances in civil protection (eg exposure to natural hazards,), environmental security (management of land degradation, natural resources extraction) and law enforcement (eg environmental crime and counter-proliferation)

- Economic development where space and non-space sensor integration, cloud based processing and platform based access to data, information and support tools enable seamless embedding of EO into the working practices within a range of economic sectors including maritime transport, urban development, natural resources management, tourism and cultural heritage and infrastructure management

The primary focus of activity for the Mediterranean region is the ESA Mediterranean Regional Initiative. This is starting now and is structured as three main elements:

- A science element targeting enhanced use of EO to address the regional Earth science priorities, in particular water cycle, oceanographic processes and the response of the Mediterranean system to external forcing
- An applications element targeting environmental protection, public health, security and economic growth
- Customized platform and processing resources optimized for Mediterranean priorities able to support the science and applications developments, ensure effective integration of space and non-space datasets and stimulating the development of new ICT capabilities and applications

Complementing this dedicated initiative, ESA has started a range of activities to better support initiatives that address Mediterranean challenges. Examples include the development of processing infrastructure for faster access (ie within minutes) to satellite imagery and stimulating the development and testing of small satellite constellations and associated infrastructure (eg transportable ground stations) to expand satellite information content, availability, coverage and persistence. In addition ESA is developing new processing paradigms building on state of the art AI and big data analytics capabilities (eg super-resolution, combined parametric and non-parametric analyses) to ensure EO can address a wider range of application scenarios as well as providing a more accessible framework to stimulate EO related business developments within the various innovation clusters around the Mediterranean region. These developments have started over the last 18 months and we are proposing to expand them under the upcoming ministerial council in November 2019.

I hope I have been able to provide visibility of how ESA is working with EO satellites, systems, scientists, application developers, ICT companies and start-up entrepreneurs to harness the capability and potential of current and planned European space capabilities to address Mediterranean priority issues. Thank you again for the opportunity to provide you all with this overview