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The Lisbon Manifesto on Earth Observation for Africa and Europe

Lisbon, 11 June 2021

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This manifesto was prepared by the Portuguese Presidency of the European Council in the context of the Africa Europe Space Earth Observation High Level Forum, 10-11 June 2021, co-organised, together with European Commission, African Union Commission, ESA, EUMETSAT and European Union Agency for the Space Programme (EUSPA)

The conference participants, wish for a collective action throughout Africa and Europe towards strengthening advanced Earth Observation systems and their integration with advanced, user-driven, citizen-based information systems, including the increase use of artificial intelligence together with massive data sets about our living pathways and their ecological impacts. This is instrumental, to respond to the challenges considered in the African Union Agenda 2063, in the European New Green Deal, as well as in our common strategies to help improve agriculture, disaster management, climate forecast, banking and finance, as well as security.

This is a question that should concern all of us due to the unprecedent times we are living in. Dealing with Climate Change, uncertainty, risk and ignorance about the future, which the new coronavirus SARS-CoV-2 so promptly came to warn us about, is becoming a changing factor of all modern societies and the best we can pass on to future generations. It requires learning more, with more solidarity and intergenerational debate, understanding respect for others, regardless of gender, age, ethnicity, religion, disability or sexual orientations.

But it also definitely requires that the Earth Observation Community tackles three main strands of actions: i) The delivery of new knowledge to effectively address the challenges of green transition making use of the opportunities driven by digital transitions across all disciplinary areas; ii) Fostering institutional innovation, across our current institutional landscape and diversified stakeholders, building the necessary economic resilience, but also addressing the social context and, above all, the inequalities that persist across our societies; and iii) guaranteeing new observation methods making use of new satellite systems, which are needed to better guide our common future and to better understand and act on our common living pathways and their ecological impacts, including the development of early warning and monitoring systems for water, agriculture, clean oceans and atmospheric issues.

The role Earth Observation can play in documenting and explaining natural process is increasingly relevant in the context of the current pandemic: the new coronavirus has passed from animals to humans likely due to the pressure that our societies and their economic development exercise on nature. It is a clear manifestation of the unbalanced influence of human beings on Earth, which is also expressed through climate change (e.g., Human Development Report, 2020, UNDP, 15th December). The eventual scientific demonstration of these relations with the pandemic with which

we now live require more knowledge to be able to ask more accurate and difficult questions and better understand the risks we run, as well as to evolve in this new geological era of the "Anthropocene".

We, therefore, recognise that the sustainable development of our societies is well supported through the Copernicus programme as a leading Earth Observation and Monitoring programme in the global context in particular through the Group on Earth Observation (GEO) for the benefit of the citizens in compliance with the GEO free and open data policy and in order to deliver solutions for the global societal challenges.

We also note, the establishment of the GMES&Africa initiative, following the Lisbon Declaration on "GMES and Africa" from December 2007, and the important work undertaken so far underpinned by the GMES and Africa Action Plan and its achievements to date. We encourage pursuing the strengthening of African capacities towards the evolving **Copernicus** programme. In addition, the European Meteorological satellite programmes of EUMETSAT and the plan to launch the Meteosat Third Generation (MTG) will be critical to provide weather and climate information over Africa for the next two decades, in synergy with Copernicus data. The African Union recognises the need to strengthen African capacities in order to ensure that Africa fully benefits from MTG as it works in partnership with the European Union and EUMETSAT. Also, the European Space Agency (ESA) Earth Observation Strategy 2040 and the ESA 2025 Agenda highlights the role of international cooperation and partnerships to leverage Earth Observation from space for the ongoing green and digital transformation of society and economy around the world including in particular Africa.

We also consider the critically important role of the numerous initiatives on Earth Observation over the last few years, both in Africa and Europe, namely those promoted by space agencies, national programmes and the European Union, oriented to provide valuable Earth Observation data and services. In particular, we acknowledge the establishment of the African Space Agency to coordinate African space activities and to accordingly create regulatory framework. We also acknowledge the establishment of the *Atlantic International Research Centre* – AIR Centre in 2018 to promote a collaborative and integrative approach to climate science from a space-based perspective and the related international dialogues on "Atlantic Interactions", to further develop an "Atlantic Constellation" of low-altitude microsatellites, as well as the promotion of advanced Earth Observation systems for the inclusive benefit of all Atlantic regions.

In addition, through this Manifesto, we encourage:

1. Considering the development of innovative and advanced Earth Observation systems and their integration with user-driven, citizen-based information systems of critically social and economic relevance while also considering addressing the current free and open data policy in a broader context and the necessity to evolve towards a system of **high resolution data** generation to support a large number of spatial applications of Earth Observation that require high resolution data such as cartography, urban and territory cadastre, urban planning, precision agriculture, security, intelligence, among others.

2. Considering **links between space and non-space sectors**, strengthen use of space data within institutional research programs such as Horizon 2020 and Horizon Europe in view of research breakthrough benefiting both Africa and Europe, fostering space-related entrepreneurship and economic growth and **strengthening a coherent African-European space cooperation**. Space should evolve towards cost reduction, commercialization, more flexibility and agility, as well as more spin-in innovation including AI. It is also important to foster the creation and development of **innovative SME's in this "New Space" domain**, either in the area of applications, small micro or nanosatellites, or in the field of private small launcher development, among many other elements associated with "New Space".

3. The intention to set-up and contribute to the necessary frameworks to promote and to facilitate a joint dialogue on space science, technical and innovation cooperation to:

    - Facilitate the uptake of space data and assets, as well as services and information derived from space data, including through establishment of regional data hubs, in support to the Africa-EU Partnership and policies of both continents;
    - Exchange regularly information on their respective programmes and activities and strengthening African and European cooperation, with the possibility of a collaborative Roadmap on EO to include new actors (e.g. AIR Centre) and programmes, and continue the success and the implementation of the GMES and Africa Action Plan;
    - Identify cooperation areas/initiatives and follow their implementation, notably in secure connectivity and satellite-based augmentation services;
    - Evaluate the need to incorporate new types of data with a higher spatial and temporal resolution and a wider spectral resolution, such that the challenge imposed by the new trends in EO (Artificial Intelligence, cloud computing, near real-time applications) can be fulfilled and the downstream market segment can develop new applications for the benefit of the European and African citizens and taking all the potential to foster economic growth and high skill job creation;
    - Propose to extend the lines of collaboration beyond the downstream applications sector with common Africa-European projects in the space segment and ground segment of new Earth observation missions;
    - Facilitate access to new types of data with a higher spatial and temporal resolution and a wider spectral range from existing institutional programs in Europe and Africa, including GMES&Africa, Copernicus and MTG;
    - Mobilize institutions and relevant stakeholders to contribute together in research, education, capacity building, innovation & entrepreneurship in downstream applications.

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