



Centre Français sur les États-Unis (CFE)

Space observation for the environment : Europe's ambitions after the Washington Summit

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A high-level meeting of the G8 club and other nations concerned with observation and monitoring of the environment took place in Washington on July 31, 2003. Dubbed the "Earth Observation Summit", it gathered representatives from 34 countries, often at the ministerial level, and from 21 international organizations, such as the World Meteorological Organization (WMO), the United Nations Environment Program (UNEP), the International Oceanographic Commission of UNESCO (IOC), the Food and Agriculture Organization (FAO), etc.

As the host nation, the U.S. government was extremely well represented, with an opening speech from Colin Powell, Secretary of State, and interventions by Spencer Abraham, Secretary of Energy, Donald Evans, Secretary of Commerce, and John Marburger, Science Advisor to the President. The French government was represented by Madame Claudie Haigneré, Ministre déléguée à la Recherche et à la Technologie, one of the few ministers from a European country who was present at the meeting.

A U.S. initiative

The objectives of the meeting were to "promote the development of an integrated Earth observation system among governments and the international community, to understand and address global environment and economic challenges", and to "begin a process to develop a conceptual framework and implementation plan for building this Integrated Earth Observation System" (IEOS).

This objective is not really new. The world's Space Agencies in charge of deploying Earth observation satellites have been involved for many years in a coordinated effort through the Committee on Earth Observation Satellites (CEOS).

The CEOS was established in 1984 as a follow up to a specific recommendation of the G7's Working Group on Growth, Technology and Employment.

However, the debates surrounding the ratification of the Kyoto protocol and the perceived increasing frequency of climate-related events (such as the heat wave this summer in Europe) and other natural disasters, add pressure on researching and monitoring of the environment. Because of this, the need for an improved international monitoring system has received more attention from political authorities.

Conrad Lautenbacher, Administrator of the National Oceanic and Atmospheric Administration (NOAA, the organization in charge of weather forecast and climate monitoring in the U.S.), pushed for a renewed effort in this direction as soon as he took over at NOAA in 2001. He received support from the White House to invite top-level representatives of concerned countries to meet and discuss the idea of an Integrated Earth Observation System during an "Earth Observation Summit" this July in Washington.

The importance of European actors

Europe, with its many dedicated organizations, is a major player in the field of environment monitoring from space. It created Eumetsat, the organization in charge of operational meteorological satellites (the well-known Meteosat series) in 1986. Today, seventeen countries participate in Eumetsat's activities, as well as three cooperating countries from central Europe. The European Space Agency (ESA) plays a strong role in assisting Eumetsat in the development of its new spacecraft. ESA also funds and flies many research and demonstration satellites of its own, such as Envisat launched in 2002, and other experimental spacecraft to be flown in the next few years. In addition, some national space agencies in Europe fund, develop and operate their own Earth observation satellites. Started by France in 1986, with Belgium and Sweden as cooperating countries, the SPOT series launched its 5th spacecraft in May 2002.

European countries also contribute to international weather monitoring satellites systems, which include U.S. satellites, and to ocean observing spacecraft. Typical of this intricate situation is the extremely successful French-U.S. collaboration on the Topex-Poseidon ocean topography satellite launched by Ariane in 1992, and followed by the Jason satellite, launched in December 2001. The follow-on satellite in this series will see involvement from the operational agencies, NOAA in the U.S. and Eumetsat in Europe. Similarly, Eumetsat will launch its first polar orbiting satellite in 2005 (METOP-1) which will carry significant instrumentation provided by NOAA.

A renewed impetus to integrate the world's systems

Since 1996/1997, members of CEOS have sought to promote the concept of an Integrated Global Observation Strategy (IGOS). With IGOS, Earth observation from space is no longer seen as a single, separate system, but as an integral part of a wider strategy of Earth and environment monitoring. It includes in-situ and more traditional data collection systems, linked together by a strong "data assimilation" and modeling effort.

This approach involves thirteen partner organizations besides CEOS. It allows for much better communication between the traditional research and monitoring communities and the research groups that focus primarily on satellite data analysis. It has led to a better recognition of what some call “exotic” satellites, i.e. the most advanced observing systems, of which the Soil Moisture and Ocean Salinity (SMOS) mission planned by ESA is a perfect example. These new satellite-based observation systems are promoted by the space community and supported by international user organizations such as WMO in meteorology and climate, IOC in oceanography, FAO in agricultural and fishing resources, etc.

The Summit’s achievements

Discussions at the Earth Observation Summit concentrated on ways and means to achieve better efficiency in coordinating strategies and systems for Earth observation. This would minimize data gaps and gradually move towards a comprehensive, coordinated, and sustained Earth observing system(s). Talks also recognized the need for a coordinated effort to involve and assist developing countries in improving and sustaining their contributions to the observing systems, as well as their access to advanced observations, data and products. It made recommendations with respect to data exchange and archiving, in order to facilitate and maximize data usage.

Finally, Summit participants requested preparation of a ten-year implementation plan. For this latter purpose, a Group on Earth Observation (GEO) was established. It started work immediately and will hold its second meeting at the end of November in Italy. The 10-year implementation plan is scheduled to be approved in two stages: implementation principles will be presented during a ministerial meeting in Tokyo in May 2004. The full plan will be approved at a ministerial conference hosted by the European Union towards the end of 2004.

A confirmation of E.U.’s new role in space

Europe is officially represented in the GEO by the European Commission. The Director General for Research, assisted by experts from ESA and other European nations and organizations, was elected one of the four Co-Chairmen of the GEO. This decision is significant. Until recently, the European Union had no say and no real wish to intervene in the European Space Policy decision-making. This responsibility was left to the Council of ESA meeting at ministerial level, and to individual member states. Indeed, many European space activities, and particularly the defense-related programs, take place outside the ESA framework. Such is the case for the Helios I and II optical surveillance military programs led by France with Italy, Spain and Belgium.

Leaving aside, for now, all defense-specific programs, the trend is clearly for the European Union to take a much more active role in defining a Space Strategy for Europe. It should for instance set the priorities and devise ways for space technologies to contribute to the objectives and policies of the Union. The European Commission is preparing a white paper on European Space Policy that will be submitted to the Council and the European Parliament. The paper will incorporate a

strong Earth observation dimension. The relevance to the Earth Observation Summit is obvious.

As early as 1998, the European Commission indeed proposed a new initiative called GMES (for “Global Monitoring of the Environment and Security”). Its purpose was to consolidate the various elements of the European efforts in the field of earth and environment monitoring supported by its individual nations or through multilateral organizations such as Eumetsat and ESA. This initiative has not yet produced the expected results in terms of convergence of objectives and definition of a real common vision. However, the dynamics from the Earth Observation Summit in Washington could encourage European nations and the European Commission to accelerate the process and come to an agreed strategy for environment monitoring and security, in which satellite-based data play a major role. This should take into account data assimilation and modeling efforts led by the European scientific community.

European participants at the summit openly agreed that GMES will be the European contribution to the implementation plan prepared by the GEO. This will give GMES more exposure at the international level and will insert it clearly in the overall context of worldwide efforts to monitor the environment.

A plaidoyer for French involvement

If Europe wants to make a visible and lasting contribution to solving the problems of a planet where the increase in population and economic growth often mean a quickly degrading environment, and global climate changes have strong negative impacts on resources and habitability, it has to act quickly. Europe has the intellectual, scientific and technological resources to rise to this challenge.

As in many other areas of European policy that require a strong vision of the future role of Europe, there is an opportunity for France, French institutions and French citizens to come forward with ideas, proposals and ad-hoc suggestions which will help the heavy European train to move. To some extent, this is already taking place in Brussels as part of GMES-related projects funded through the E.U.’s 6th Framework Program for Research and Development. French research organizations are playing a strong role in these projects. The excellent and fruitful cooperation they enjoy with American agencies such as NASA, NOAA, the NSF and many well-known research centers in environmental science and monitoring, particularly from satellite-based observations, can help them play a major role in shaping Europe’s future in this area.

Note: Further information on the Earth Observation Summit and the activities of the GEO can be found on the following site: <http://www.earthobservationsummit.gov/>