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PRESS RELEASE

Adapting to climate change will require a higher order of “environmental intelligence”

Cape Town Ministerial Summit to promote wider use of integrated, near-real-time Earth observations

Geneva, 21 November 2007 – Ministers and officials from over 100 governments and international organizations will assemble in Cape Town, South Africa, just several days before the opening of the annual UN climate change conference in Bali, to advance an internationally agreed plan for building a Global Earth Observation System of Systems (GEOSS).

The Cape Town meeting will take a comprehensive view of global environmental change. Many aspects of the ‘system of systems’ that governments are constructing, however, will be of particular value to the UN Climate Change Convention and its efforts to strengthen the capacity of communities and nations to adapt to the emerging impacts of climate change.

“Climate change cuts across and encompasses many other issues, including disaster management, biodiversity loss, food security, and emerging health risks. Adapting to these expected impacts will require sophisticated ‘environmental intelligence’ on how the Earth system responds to both climate change and adaptation policies, particularly at the local and regional levels,” said José Achache, Director of the Group on Earth Observations (GEO) secretariat. GEO is organizing the Cape Town meeting and coordinating the construction of GEOSS.

Because global challenges such as climate change cannot be managed effectively in isolation from other issues, it is no longer possible to rely on single-purpose, stand-alone observation systems. Fortunately, new technologies now make it possible to link together a multitude of systems, data sets and models across the fields of weather, climate, biodiversity, geology, health, agriculture, water, natural hazards and socio-economics. The resulting ‘system of systems’ will greatly enhance decision making by providing comprehensive, interdisciplinary, near-real-time environmental monitoring of the entire Earth system.

The Cape Town Plenary (28-29 November) and Ministerial Summit (30 November) will review a variety of “Early Achievements” and “Tasks” that governments and organizations have contributed to the construction of GEOSS. Many of these projects and activities will support efforts to adapt to climate change. To choose just a few examples:

- Climate change is expected to increase dryness and drought in many regions, and thus the risk of fires. GEOSS is establishing a Global Early Warning System for Wildland Fire that will

greatly improve prediction and adaptation. This will be achieved by integrating data on soil and tree moisture, long-term drought episodes, wind and rain forecasts, and settlement patterns and linking them with alert systems. A prototype African component of the System has already been established.

- Drier conditions will also contribute to desertification and erosion, which will in turn lead to more and stronger sand and dust storms. Aerosols are often transported through the atmosphere to distant places where they can harm human health. Linking together now-separate prediction and observing systems for sand and dust storms will greatly reduce the risks associated with such events. Early warnings of these storms will facilitate countermeasures to protect human health as well as critical economic sectors, such as the airline industry, which can use storm warning charts to ensure flight safety.
- Climate change will affect human health and disease patterns. Earth observations can be used to predict likely epidemics of infectious illnesses and their possible spread to new areas. Experts concerned with public health in Africa's "meningitis belt", for example, have noted that meningitis outbreaks are sparked by periods of unusual drought and dryness. GEO's collaborative Meningitis Environmental Risk Information Technologies project will enable health agencies to integrate their epidemiological maps with Earth observation maps of climate, weather, water supplies, soil conditions, and ecosystems, as well as with maps on topography, population, and transport infrastructure. Thus empowered, they will be able to anticipate outbreaks of meningitis and prioritize the supply of vaccines to the areas at highest risk. An increased prevalence or outbreaks of other infectious diseases, such as cholera, can also be predicted with the help of remote-sensing observations of the land and ocean environment.
- Many species and ecosystem services are under threat, and this will only worsen with climate change. (Deforestation and other biodiversity losses will in their turn worsen climate change by releasing greenhouse gases.) Through its biodiversity arm, the emerging GEO Biodiversity Observation Network, or GEOBON, GEOSS will bring together the many observing instruments and systems now tracking trends in the world's genetic resources, species and ecosystems. It will create a global platform for integrating biodiversity data with data on climate, pollution and other key variables. Many adaptation policies, from planting mangrove trees along vulnerable coasts to establishing wildlife corridors between protected areas to introducing drought-tolerant species into lands threatened by desertification, will benefit from this improved information.
- Another GEO initiative seeks to build on and add value to existing observation systems for freshwater supplies, which are likely to face further stress from climate change. The Hydrological Applications and Run-Off Network, or HARON, project will start by integrating dedicated river-gauge networks maintained by national hydrological stations into a global runoff-observation network. It will then gradually link in-situ and remote-sensing global observation networks on climate and other variables relevant to freshwater into this integrated observing system. It will also identify key national, regional, and global organisations to implement, support, and maintain the network. In this way, HARON will improve the ability of water-resource managers to access high-quality observations, predictions, and decision-support tools in order to anticipate and minimize climate-related threats to water supplies.

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