

satellite data providers. When commercial data is used, the cumulative price, uniformity and access to satellite data become, especially for smaller, developing states, a major issue. The Open Skies regime, by contrast, could provide analogous data, with far better resolution, sooner, and at nominal cost.

Complex urban terrain and land use result often in a requirement for VHR data. Airborne sensors provide the best resolution data at present. There are currently no commercial, scientific, or natural resources satellite equipped with a 30 cm resolution sensor.

There are, however, also areas of advantage where capabilities available to EO satellites prevail over those that are available under the Open Skies Regime. These have to do mainly with long-term, sustained data-acquisition and global access.

- While airborne sensors provide data with best spatial resolution, this collection source can be potentially cost and time prohibitive when a need exists to access large areas. If space data were not available, airborne information gathering would be time-consuming and almost certainly could not be as comprehensive in the spatial domain.
- The maintenance of sufficiently dense network of *in situ* sites and stations for the purposes of Detection and Early Warning is very expensive. Space observation thus is often the only viable alternative. The limited resolution (and accuracy) offered by such measurements is however compensated by the wall-to-wall national coverage and high-frequency revisit rates.
- Satellite remote sensing is the only monitoring option for keeping watch over some active area when it is too hazardous to stage an airborne reconnaissance mission (i.e., like flying through volcanic ash plumes).
- Very rapid damage assessment and detailed mapping capability are key requirements of the humanitarian aid community. Only some satellites (medium-resolution, weather) have a daily repeat and rapid delivery (1 to 2 days) capability to provide a first approximate damage assessment. No other tool can provide such information.

What are the Areas of Synergy between Open Skies-Type Surveillance and Other Forms of Environmental Data Collection, be it Space Remote-Sensing or On-Site Inspections?

While VHR data (Open Skies, IKONOS, IRS-1C/D, Corona) is needed for infrastructure mapping, urban change detection and the production of DEMs, high resolution satellite radiometric data (SPOT-HRV/VEGETATION, Terra, Aqua, Envisat, Radarsat) is needed for compiling land cover databases, and medium-resolution satellite data (NOAA AVHRR, SPOT-VGT, Landsat-7 ETM), is needed for early warning purposes at national/regional scale. Geostationary satellite data (METEOSAT) is needed for early warning of meteorological events on daily basis.

However, EO data can supply only parts of the information mosaic needed for crisis-struck areas. Collateral data needed in humanitarian missions also includes information on the vulnerability and security of displaced people, the quality and capacity of the health infrastructure and availability of food. Data of that type cannot be obtained by EO means, but can only be obtained from local government institutions or from near real-time human sources present on the ground at the time of the disaster. NGO's, political groups, media/Internet are the most common sources of such information, although the validity of their claims sometimes is in doubt.