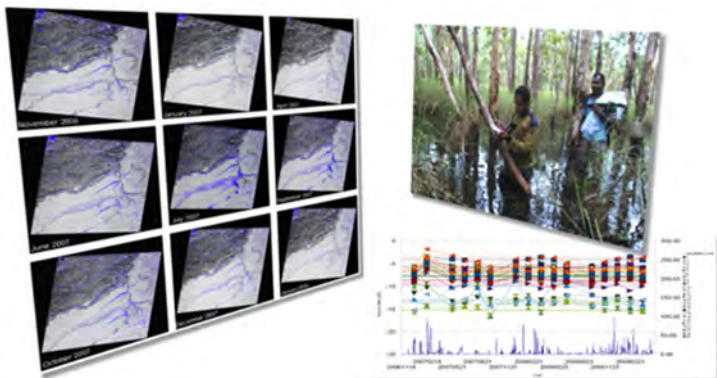


NATURAL RISK MANAGEMENT

Developing countries suffer the larger majority of all deaths caused by natural disasters. Their high population densities and poor infrastructure, coupled with unstable landforms and exposure to severe weather events, makes them particularly vulnerable to natural disasters.

Official development assistance therefore often aim at improving disaster preparedness and reducing disaster impact from floods, droughts, landslides and other water-related disasters. Several phases in risk management (prevention, forecasting, alert and crisis) require reliable geodata. EO data play a critical role providing a synoptic view over large and inaccessible areas as well as the ability to provide historical and current observation of (potential) disaster areas. A multi-sensor EO approach is most feasible for providing the requested information service. Given typically cloudy conditions when most severe floods and landslides occur, the use of old and new SAR missions should be emphasized. Drought impact is best detected with optical imagery.

SAR and optical EO data is also extensively exploited for mapping, monitoring and forecasting landslides. EO is a key source of information to document the extent of landslide phenomena in a region, to investigate the distribution, types, pattern, recurrence and statistics of slope failures, to determine landslide susceptibility, hazard, vulnerability and risk, and to study the evolution of landscapes dominated by mass-wasting processes.



Flooded area map series derived using largely automated multi-sensor image processing workflows and integration of meteorological information (rainfall)

SUMMARY

CHALLENGE

- Climatic variability and change is being increasingly experienced in the form of more frequent, severe and less predictable floods and droughts events
- Need to identify areas vulnerable to natural disasters
- Need to take appropriate measures to mitigate impacts from natural disasters

SOLUTION

- The EO service product has many uses in disaster management, from risk modelling and vulnerability analysis to early warning and damage assessment

VALUE

- Improved capacity to assess disaster risk, vulnerability and exposure to natural hazards
- Efficient mapping of large geographical areas
- Proper identification of areas vulnerable to water related-disasters

Satellite Earth Observation (EO) technology has a tremendous potential to inform and facilitate international development work. Since 2008 the European Space Agency (ESA) has worked together with the International Financing Institutions (IFIs) and their client countries to harness the benefits of EO in their operations and resources management.

EO4SD – Earth Observation for Sustainable Development – is an ESA initiative which aims to achieve a step increase in the uptake of satellite-based information in the IFIs regional and global programs, aiming at more systematic data user approach in order to meet longer-term strategic geospatial information needs in the individual developing countries as well as international and regional development organizations.

The EO4SD initiative cover a wide range of thematic domains including Water Resources Management which is regarded as one of the most critical development challenges.

The activities will start in spring 2016 and will run for a period of three years. The first year will be dedicated to stakeholder engagement and requirements consolidation and with years two and three focusing on information production, delivery and capacity building.

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