Flood footprints based on satellite data
an example of collaboration between the Space industry and the Insurance industry

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Earth observation and the insurance industry

Background to the project

Insurance industry needs

What has been put in place and how it operates

Who will use it
Insurance industry identified as potential new user of earth observation data

Discussions ongoing since 2009

ESA funded project led by Vista GmbH working in collaboration with Swiss Re to determine industry’s “Requirements for earth observation services”

3 key workshops;
Munich Sept 2009 & Rushlikon in 2011 – attended by representatives from insurance sector
Frascati 2012. - Brought insurance, earth observation service providers & satellite operators together
Insurance industry needs

All revolves around answering these questions;

Where is my risk located?

What is my Probable Maximum Loss within a [250] year return period?

What loss scenarios and events should concern me? Severity & frequency?

How can my portfolio be optimised?
Hazard data

A variety of needs e.g. liquefaction for earthquakes, flood extent flood height and dynamic analysis for plain flooding, history/likely and max height for storm surge, agriculture with yield information.

Users need the footprint of the hazard impact

Parametric index based services a more mature domain where Satellite EO is already contributing. Met data are used in this domain (rainfall, soil moisture) and are based on long time series (decades) at coarse resolution.

Consistent coverage – national, regional & global

Broad range of needs around data resolution/scale
Varies by hazard type (high res for flood)
Varies by purpose / end use

Data which can be used to enhance the incomplete or poor quality exposure information which already exists
Barriers to take up of earth observation data by insurance sector

Financial cost
The cost of licensing sufficient data for an entire country or region at a high resolution is often prohibitive. Cost/benefit always a consideration.

Availability / coverage
Consistent national data sets not always available for every territory covered by a global insurance programme.

Data quality / resolution
Insurance applications of EO tend to make use of data from platforms designed for other purposes
High resolution and horizontal / vertical accuracy needed especially for flood insurance.

Licensing issues
Licence terms often not sufficiently flexible for insurance usage e.g. in relation to onward distribution of derived products.
Barriers to use

**Cost** (especially cumulative costs given the coverage extents needed)
- Share the purchase?
- Transactional pricing?

Ability to prove the value to senior decision makers
- Free or low cost data for pilot studies/proof of concept?

Licence terms and conditions an issue that could be overcome rather than a barrier

Main barrier is not knowing what data is available or where to access it potentially overwhelming choice of suppliers. Difficult to know who to approach and what is being offered.
Flood information is the insurance sector’s priority

The insurance industry, the European Space Agency, satellite operators and EO value added service providers are collaborating to make available satellite based flood footprints during and after major flood events.

A process had been put in place to capture flood information as a flood event evolves.

Currently a trial, but significant progress towards bringing EO information to the heart of insurance sector decision making.
What has been put in place and how it operates

Selected EO data providers
Kongsberg Satellite Services - KSAT (RADARSAT-1/2)
Astrium Geo-Information Services (SPOT 4/5 and TerraSAR –X)
E-GEOS (Cosmo-SkyMed)

Data processing and value added services
SERTIT
Vista GmbH

Distribution
PERILS AG
End users will be underwriters and analysts within insurance companies and insurance intermediaries

2 data products;

Rapid flood snapshots – immediate impact assessment. Enables insurers to better understand the extent of an event’s potential impact to their portfolio and ultimately to their bottom line.

Final flood footprint of maximum flood extent – can be used to inform and help calibrate models.
Providing what insurance industry needs

High quality post-processed data

Cost effectiveness

Consistency

Appropriate resolution for purpose

Ease of access

Licence terms that permit creativity, distribution & publication
Summary

ESA funded the project led by Vista GmbH working in collaboration with Swiss Re, the purpose of which was to pin down what the insurance industry needs from satellite data. This was established via two workshops, the first in Munich in Sept 2009 with a follow up in Rushlikon in 2011.

Key participants from the insurance industry were Swiss Re, Willis, Munich Re, Eqecat, Allianz and Guy Carpenter.

Flood footprints emerged as the data of most immediate value to the insurance industry which could be delivered in a short time frame by the satellite data industry.

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