Disaster Management using Digital Elevation Model & Radar Weather Independent Earth Observation data (SAR)

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Connected Intelligence
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Germany
EO SAR: Airbus Missions

TerraSAR-X (2007)
TanDEM-X (2010)

PAZ (2018)

Future mission

Next Generation Service Scenarios

WorldSAR Constellation Cooperation with Hisdesat (ES)
Digital Elevation Model
Southerland, South Africa
Use Case #1

Ghana: Inundation Hazard Modelling

Applications:
- Storm Surges
- Coastal Floods

Coastal flooding simulation, Accra West, Ghana

Analysis from WorldDEM™, Background Image from Sentinel 2
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Recommended Practice for coastal flood modelling

→ Published at the UN-SPIDER Knowledge Portal

- Open source GIS software
- Easy handling
- Applicable for all DEM data

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Use Case #2

Nicaragua: Flood maps to enable first aid to land in safe airfield

Applications:
- Emergency response
- Storm surges
- Hurricanes
Flood Simulation, Coyolate River, Guatemala

Use Case #3

Guatemala: River Inundation Modelling

Comparison between WorldDEM and free and open data

FLOOD SITE:
SANTA ODILIA VILLAGE, NUEVA CONCEPCION, ESCUINTLA, GUATEMALA

DISCHARGE DATA FROM THE CERRO COLORADO STATION
T = 50 YEARS
Use Case #3

Guatemala: River Inundation Modelling

Comparison between WorldDEM and free and open data

Flood Simulation, Coyolate River, Guatemala

Specific discharge

SRTM, 30M

VS

Specific discharge

WorldDEM, 12M

Courtesy of Private Institute for Climate Change Research
Use Case #4

Argentina: Lahar Modelling

*Using WorldDEM™*

**Applications:**
- Lahar modelling
- Settlement areas hazard risk assessment

Lahar Modelling, Copahue Vulcano, Argentina

References

- Copahue Vulcano
- Cities
- Lahar Volume (cubic meters)

Use Case #5

Germany: River Inundation modelling with WorldDEM DTM\textsubscript{lite}

Example of a 100 Year Return Flood modelling. Neckarau (Germany)
Use Case #6

Dam Failure scenario

With simulation models such as FloodArea and Airbus Digital Elevation models, these processes can be well modeled to fit the customer requirements.
Use Case #7

Flood Rapid Mapping

Global availability of WorldDEM data and derived DTM_{lite} allows for the implementation of globally robust procedures to assist the automated mapping of flood events.
Thank you

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