



WSF 2023 Panel II: Enhancing the contribution of Earth Observation and artificial intelligence for future emergency platforms - <u>The Role of EDC</u>



Earth observation Data is vital in every operational stage of disaster management platforms: from early warning and risk assessment to response and recovery, as well as in planning and implementing long-term strategies to reduce the impact of future natural disasters.



Experience the EarthDaily Constellation

The unprecedented insights unlocked by our constellation will enable our customers to make informed decisions with the magnitude of accuracy and efficiency unseen before.





What does the world's most advanced change detection system look like?

Land Use / Water Quality Plant Health	1 Coastal 2 Blue 3 Aqua 4 Green 5 Yellow 6 Red	 Dust & Smoke, Ocean Colour: Water Quality and Organic Content Plant Senescence and Pigment, Soil Colour, Mineral Composition Plant Pigments, Ocean Colour: Water Quality and Organic Content Total Chlorophyll, Ocean Colour: Water Quality and Organic Content Plant Pigments, Soil Contamination, Plant Growth and Stress Plant Structure, Nitrogen, Moisture, Soil Colour
Data Quality	7 Red Edge 1 8 Red Edge 2 9 Red Edge 3 10 Near Infrared 11 Water Vapour 1 12 Water Vapour 2	 Plant Stress, Fluorescence, Type Organic Matter, Ocean Colour: Water Quality and Organic Content Atmospheric Water Absorption, Crop Stress and Moisture Atmospheric Water Vapour
Soil Health Methane	13 SWIR 1 14 Cirrus 15 SWIR 2 16 Methane 1 17 Methane 2 18 Wildfire	 Atmospheric Aerosols, Vegetated water content Cloud Properties Snow and Ice Discrimination, Soil Moisture Methane characterization Methane characterization Radiative fire power, Wildfire detection and characterization
Land Temperature	19 TIR 1 20 TIR 2 21 TIR 3 22 TIR 4	 Volcanos, Mineral composition, Surface temperature, Snow characterization, Soil and Vegetation Moisture, Urban Heat



Environmental Monitoring

Continuous monitoring of the environment helps in understanding the long-term impacts of natural disasters. This includes changes in land use, deforestation, and the effects of natural disasters on ecosystems.





Disaster Response and Management

During and after a natural disaster, earth observation technology aids in assessing the extent of damage, identifying affected areas, and coordinating rescue and relief efforts. Satellite imagery can be used to create detailed maps for rescue teams and to plan the distribution of aid.





Early Warning Systems

Satellites and remote sensing technologies provide critical data for early warning systems. Detect changes in the environment that may indicate an impending natural disaster, such as increased soil moisture levels suggesting potential flooding or thermal anomalies indicating volcanic activity.





Monitoring and Prediction

Earth observation technology is essential in monitoring weather patterns and predicting natural disasters like hurricanes, typhoons, and cyclones. This technology can track the path and intensity of these storms, helping to prepare and minimize their impact.





Assessing Risk and Vulnerability

By analyzing historical data and current environmental conditions, this technology helps in assessing areas that are at risk of natural disasters. It can identify regions that are prone to earthquakes, landslides, floods, or wildfires, allowing for better planning and preparedness.





Wildfire Prediction and Analysis

Assessments such as air/land temperature, moisture content, and burn/ignition probability, available from our satellite imagery, will strengthen risk forecasts to protect public health and financial interests. Cloud-free data from our satellites will also help determine the precise extent of a wildfire.



Impact / Results

Loss of tropical forests equivalent to more than 30 soccer fields worth of trees every minute

7,667 fires recorded in California (2022), totalling approximately 363,939 acres across the State

Current extinction rates are 1,000 times higher than natural background rates of extinction and future rates are likely to be 10,000 times higher





Climate Change Analysis

By tracking changes in the Earth's climate, this technology helps in understanding how climate change contributes to the frequency and intensity of natural disasters. This information is critical for developing strategies to adapt to and mitigate the effects of climate change.





Drought response

Climate change has caused droughts to become longer and more severe. Our satellite data will help identify crucial drought indicators in vegetation health, soil moisture and river and reservoir water levels. Such impact analysis plays a vital role in detecting vulnerable areas, assessing risks, and curbing further damage.





Flood mapping

Floods have become a major threat to crops (agriculture), water quality (natural resources), aquatic ecosystems, roads (infrastructure) and soil erosion due to their increasing frequency and magnitude. All countries, especially those developing, are able to alleviate the impacts of floods with our analytics-ready satellite data.





Landslide and debris flows

Intense rain can trigger landslides that merge into debris flows filling neighbouring communities with mud and rocks. Data from our satellites can help assess the extent of the impact as the debris flows can potentially end up blocking coastal roads or damming entire rivers, resulting in various infrastructure related hazards.







EarthDaily Constellation Everywhere. EveryDay.

A A

Satellite

Downlink

EarthPipeline as a Service

Commissioning,

Processing,

Calibration, QA





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Value Added Services & Actionable Insights



Raw Downlinked Data

EarthPipeline automatically transforms raw downlinked data into Analysis Ready Data to power automated actionable insights



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Earthdaily Analytics delivers innovative satellite processing services and impactful analytics using Earth Observation data.

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Analysis Ready Data





On 23 March 2023 the ITEA Board has decided to label the ITEA Call 2022 project:

22014 NADIR

We congratulate you in reaching this milestone and wish you good luck with the execution of the project.



Problem to be solved

- Climate change is already having a significant impact on our biosphere. It can, for example, cause biodiversity loss, wildfires, a decrease in crop yields and increased temperatures. It can also affect people's health. Heatwaves, for example, can cost human lives in urban clusters.
- INADIR is A natural Hazard/Disaster Risk and Assessment Platform to
 - Support the mitigation and assessments of natural hazards/disasters including fire, flooding, and drought using satellite imaging
 - How: NADIR will use Earth Observing satellites combined with known ground truth to understand subtle scientific signals on the planet.
 - Daily satellite monitoring of the Earth's landmass enables better monitoring, management (simulation and operational planning), prediction and in some cases prevention of large-scale impact from natural disasters
 - Additionally, AI will be used to develop predictive models to assign risk scores, as well as automated monitoring to alert when natural disasters begin to arise. AI will provide proactive intelligence through simulation and training







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