

Building Institutional Capacity for Multi-Hazard Early Warning in Asia and the Pacific

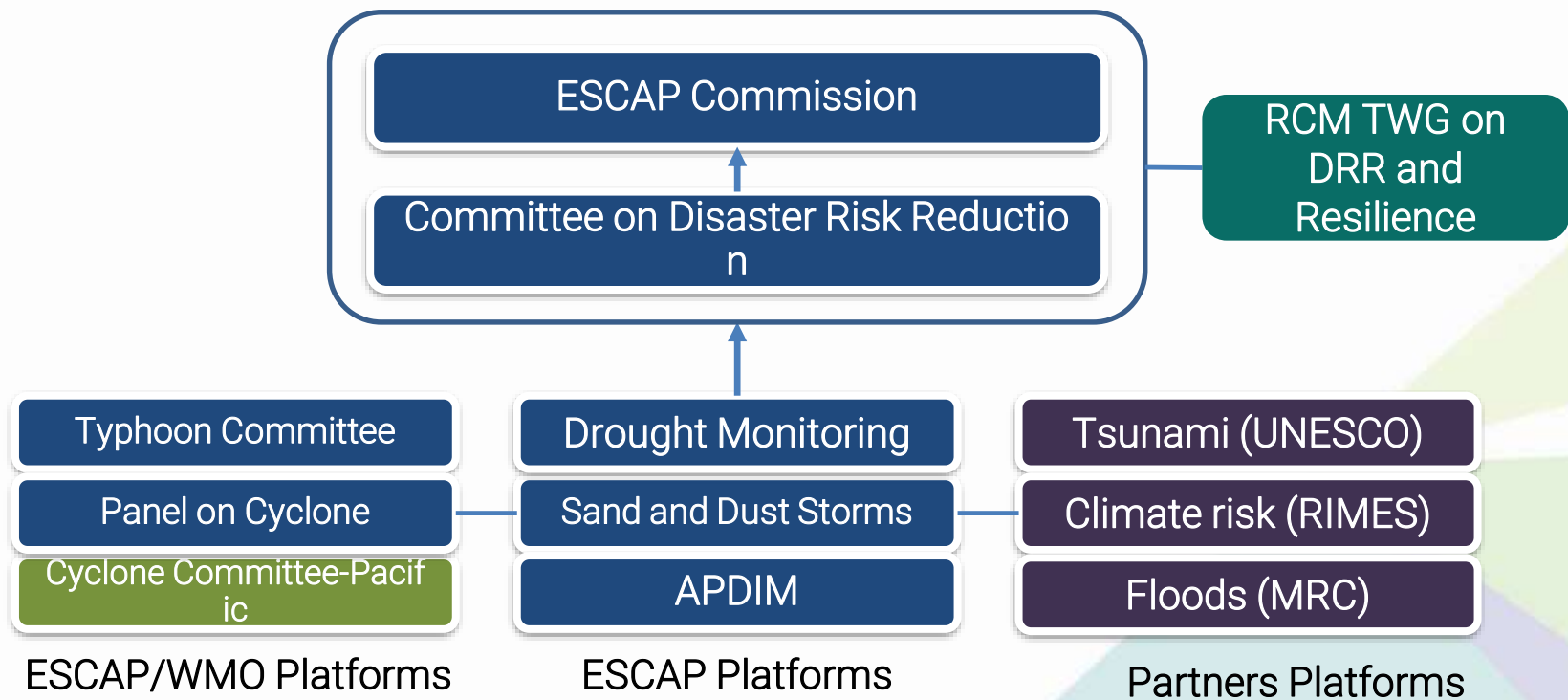
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ICT and Disaster Risk Reduction Division

22 May 2018

Pillar I: Regional Platform for Multi-hazard Early Warning System

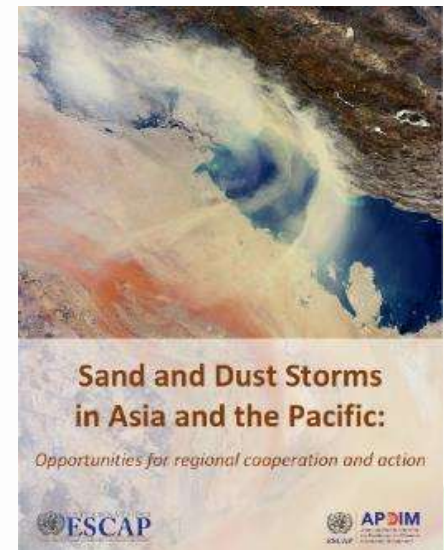
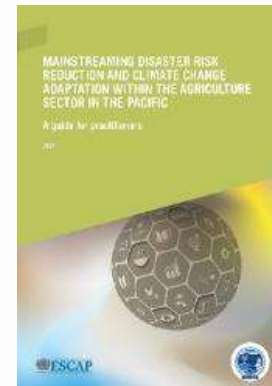
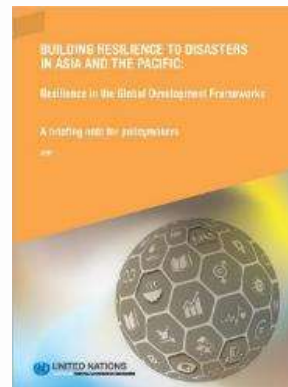


Pillar II: Geospatial information services

- Timely provision to countries affected by disasters: 400+ satellite images/ products for drought, cyclone, earthquake and flood. 7X24 service with free data and support from RESAP member countries, valued 1+MUS\$.
- Strengthened collaboration with partners: UNITAR/UNOSAT, UN-GGIM, Office of Outer Space Affairs (OOSA), UN-SPIDER, Group on Earth Observations (GEO), AHA Center, Asia-Pacific Regional Space Agency Forum (APRSAF), universities and academies.
- The Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018-2030): all countries can access and use space science, technology and their applications to the fullest extent to meet their individual and regional needs for achieving the SDGs.
- Third Ministerial Conference on Space Applications for Sustainable Development in Asia and the Pacific: will provide further guidance for successful implementation of the Plan of Action and build stronger political support and ownership among all stakeholders.

Pillar III: Knowledge Hub

Publications

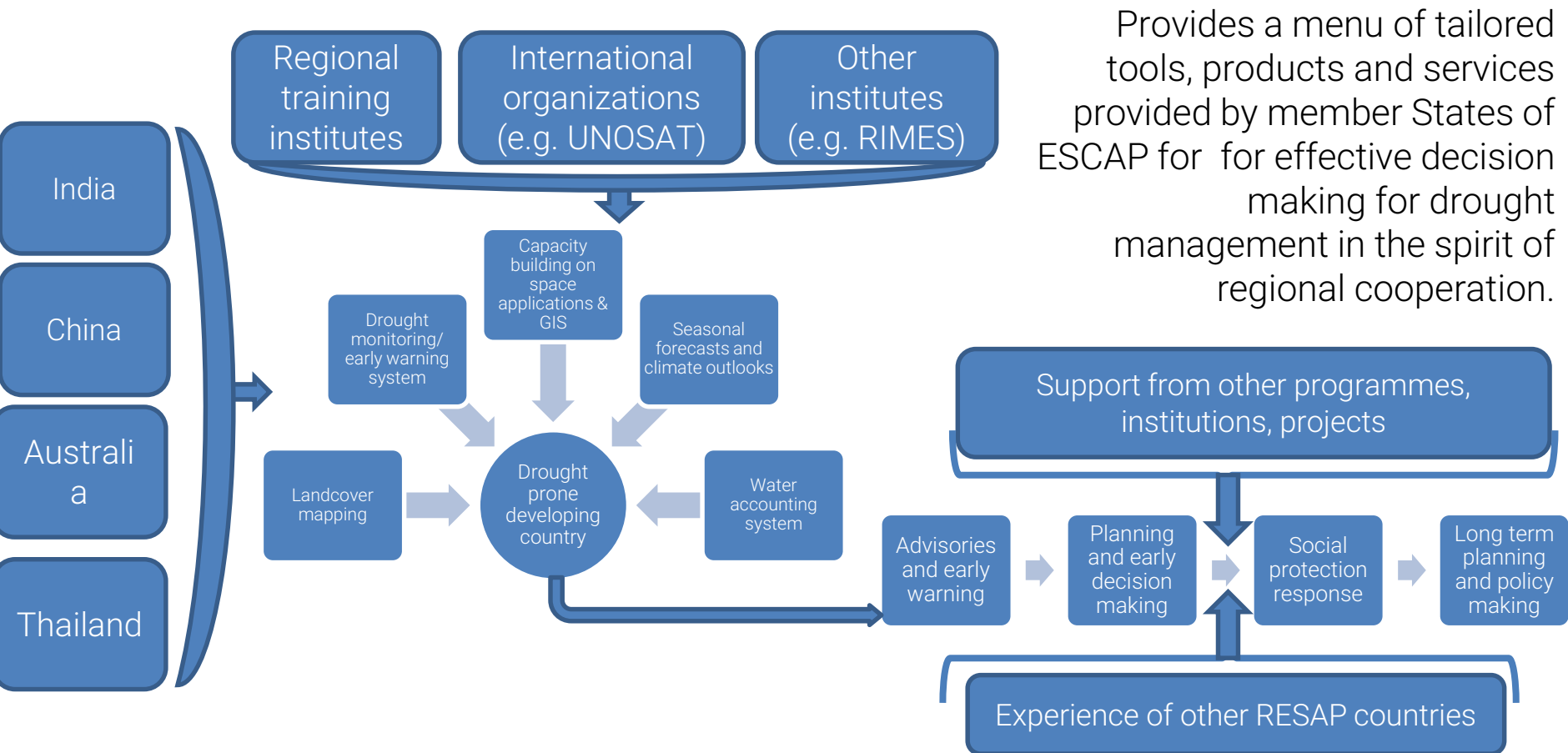


2017

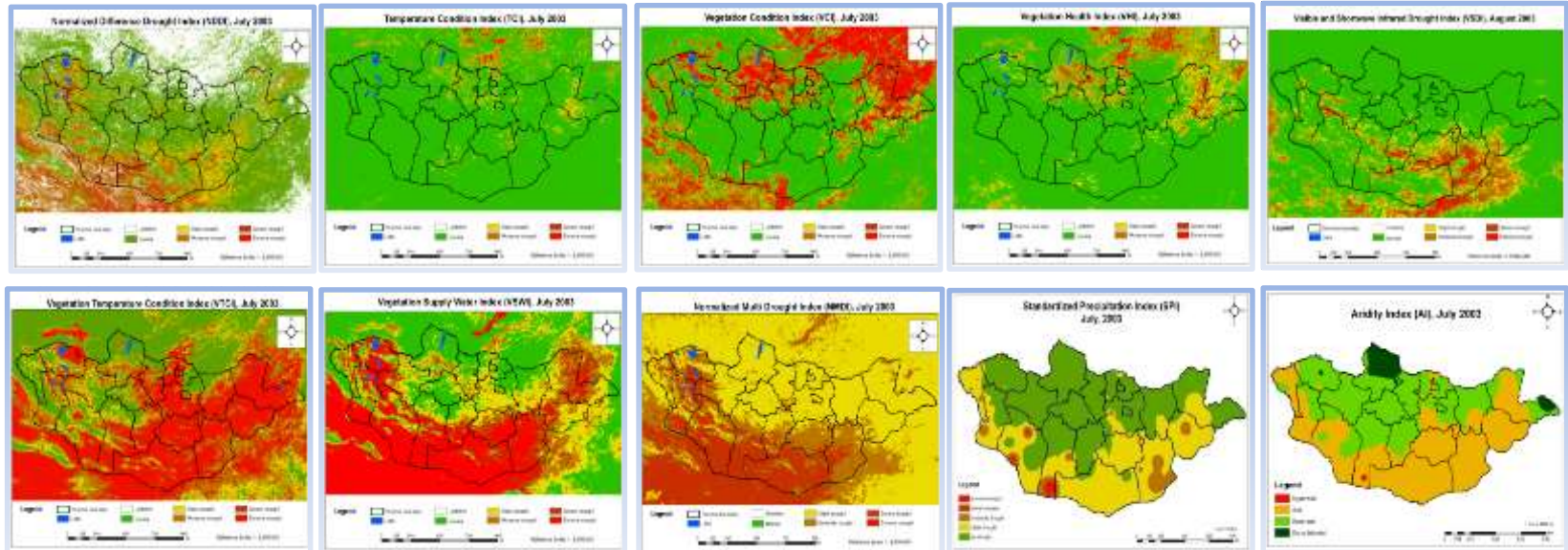
ESCAP's Space Applications Programme

1. Regional Space Applications Programme for Sustainable Development (RESAP) since 1994
2. Asia-Pacific Plan of Action for Applications of Space Technology and GIS for DRR and SD 2012-2017
3. Regional Drought Mechanism for agro-drought early warning and monitoring
4. Capacity-building programmes on operational system
5. Support to disaster-affected countries on near real-time satellite imagery
6. Delivering as One UN and partnerships

Regional Drought Mechanism



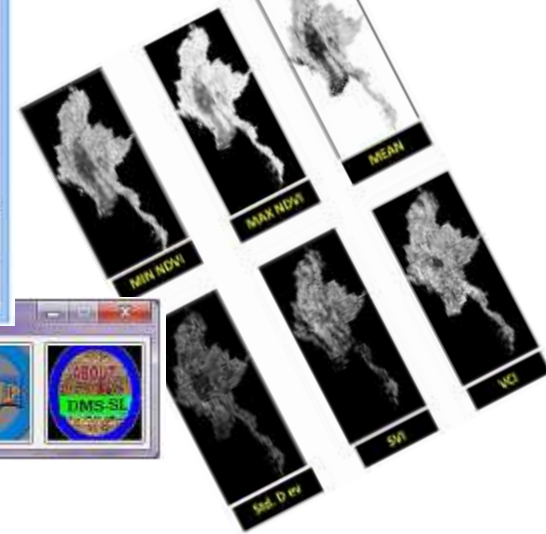
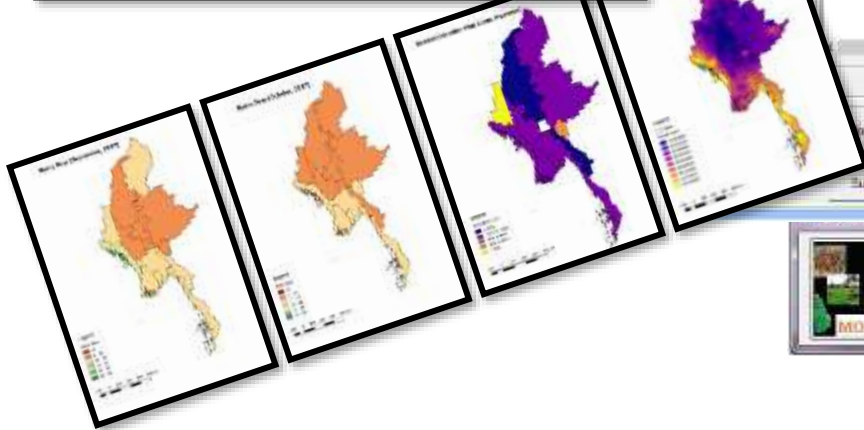
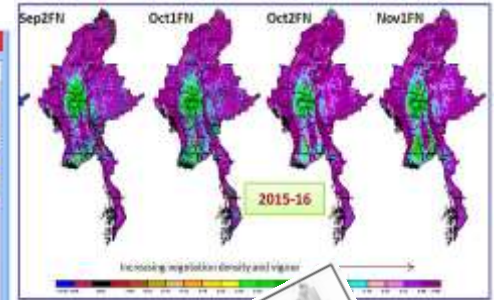
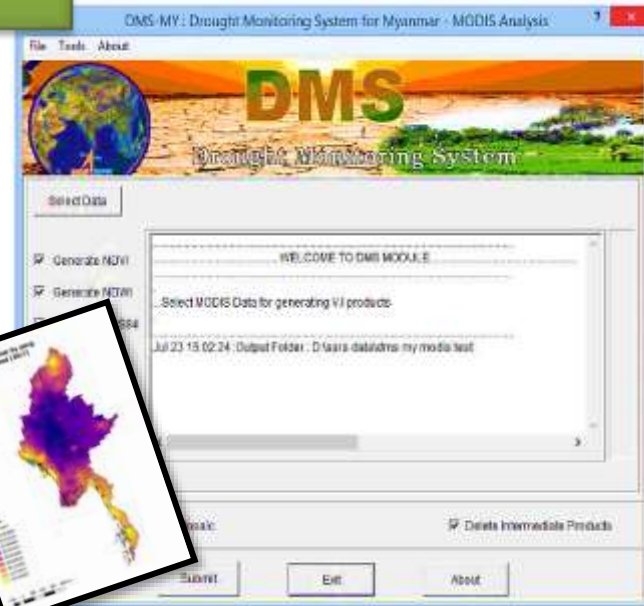
Operationalization of the DroughtWatch system in Mongolia through technical support from China



Operationalizing the Spatial Data Viewer for Sri Lanka by National Remote Sensing Center of Indian Space Research Organization (NRSC-ISRO)

The screenshot displays the 'Sri Lanka Spatial Data Viewer' web application. The interface includes a top navigation bar with the 'bhuvan' logo and the text 'Gateway to Indian Earth Observation'. The main title 'Sri Lanka Spatial Data Viewer' is centered. On the right, there is a 'Welcome User' section with a 'Login' link, and the 'National Remote Sensing Centre' logo. Below the title bar, a search bar prompts the user to 'Enter City or Lat,Long(coordinates) or T3'. A secondary navigation bar contains links for 'Tools', 'Updates', 'Bhuvan Store', 'Link', 'Help', and 'Home'. The left sidebar lists various map layers: 'NDVI Anomaly Maps', 'Administrative Boundaries' (with a sub-option for 'Admin Boundaries'), 'Resource Maps', 'Field Data', and 'Anomaly Analysis'. A 'Disclaimer' note states that administrative boundaries are downloaded from DIVA-GIS. At the bottom left, there are buttons for 'Add Layer' and 'Add Content', and a section for 'User Added Content and Layers'. The main map area shows a satellite view of Sri Lanka with a scale bar and navigation controls. Map style tabs for 'Map', 'Satellite', 'Hybrid', 'Terrain', and 'More' are located on the right side of the map. The background of the map area features a repeating watermark of the 'bhuvan' logo and 'nrsc / ISRO' text. The bottom right corner of the map area contains the text 'Indian Remote Sensing Satellite'.

Operationalizing the Drought Monitoring System (DMS) in Myanmar by National Remote Sensing Center of Indian Space Research Organization (NRSC-ISRO)



Training and Capacity Building

Cambodia



Pacific Project on MHEWS

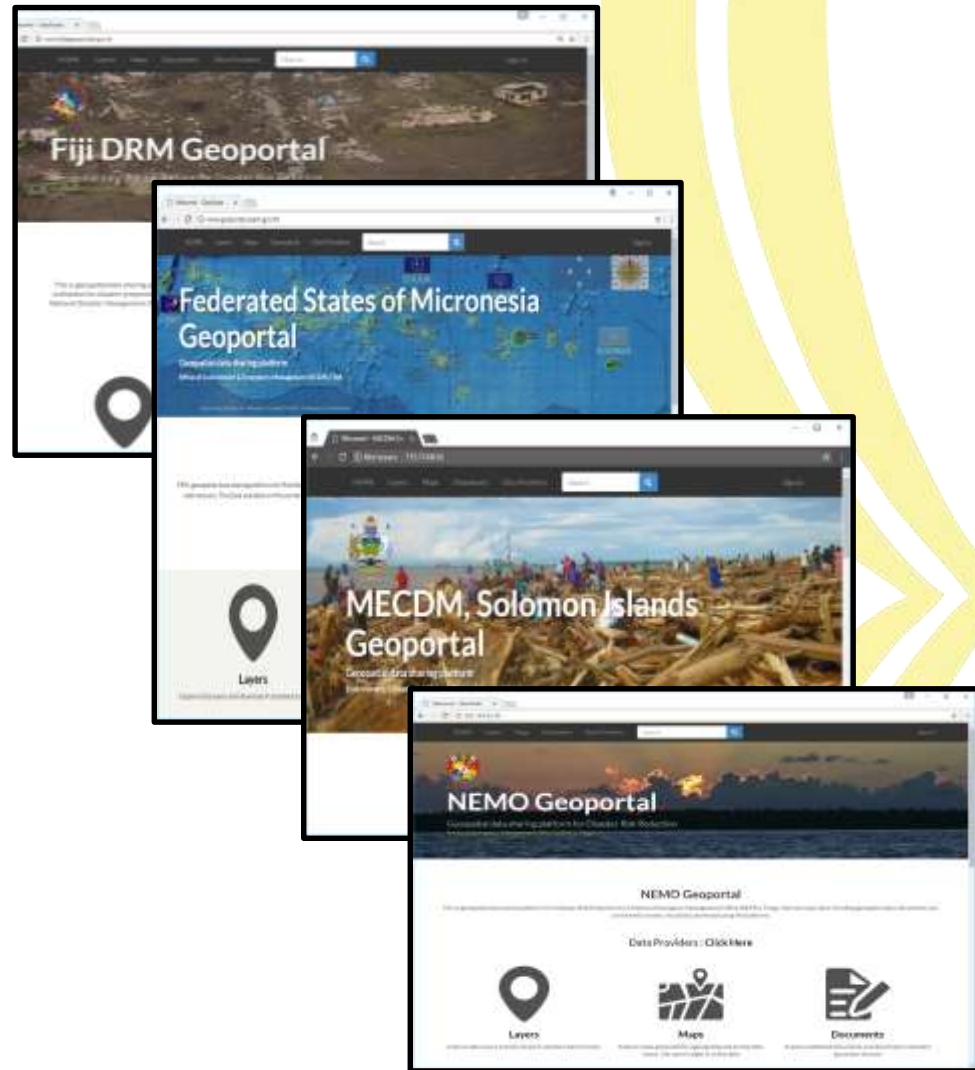
- Concentrate on systematic use of geospatial data and operational early warning system
- Enhanced institutional capacities on effective use of space-derived data and GIS for disaster risk modelling, assessment, monitoring
- Combined regional dimensions and pilot country projects
- Bridging out Pacific countries with other sub-regions
- Mid-term plan and sustainability

Key Activities

1. **Two Analysis and Research WS**
 - Gaps and Needs Assessment on geo portal and geo database
 - Gaps and Needs Assessment on early warning system in Pacific
2. **Two Intensive Capacity Building Training Programmes (one month each)**
3. **7 pilot projects in 5 Pacific countries**
4. **Strategy on knowledge hub for early warning**
 - Two expert meetings
 - Findings
5. **Three Regional Workshops**

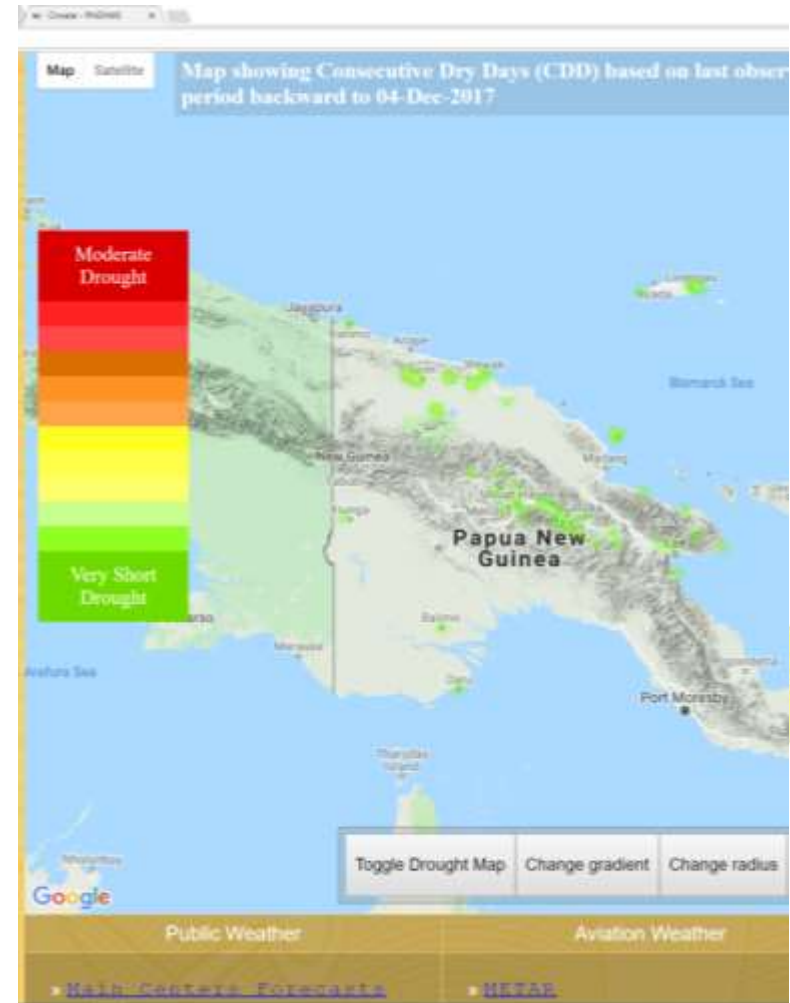
Pilot Project – Fiji, Micronesia, Solomon Islands and Tonga

- A fully operational geo-portal was installed at NDMO and line ministries
- On-site capacity building training
- Development of mid-term work plan to ensure the sustainable usage of the geo-portal



Pilot Project - PNG

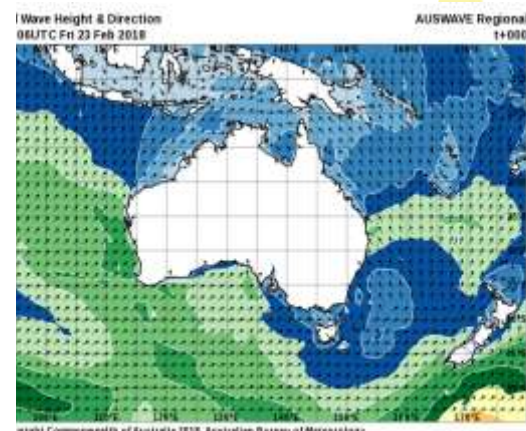
- Establishment of Drought Monitoring System
- On-site capacity building training
- Improving the interactive dissemination of Drought Monitoring Information for stakeholders
- Development of 3-5 year work plan to guaranty the sustainability of implemented system



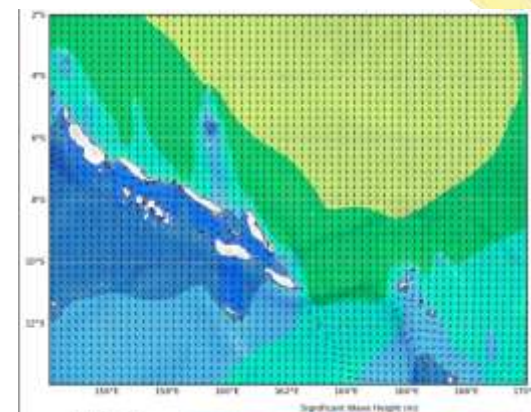
Pilot Project – Solomon Islands

- Implementation of high resolution Weather Research Forecasting (WRF) and Ocean Wave model Wavewatch 3
 - 7 km resolution
 - domain of the whole region of Solomon Islands
- Implementation of Common Alerting Protocol (CAP)
- Hands-on training
- Development of work plan to guaranty the sustainable usage of implemented systems

Before

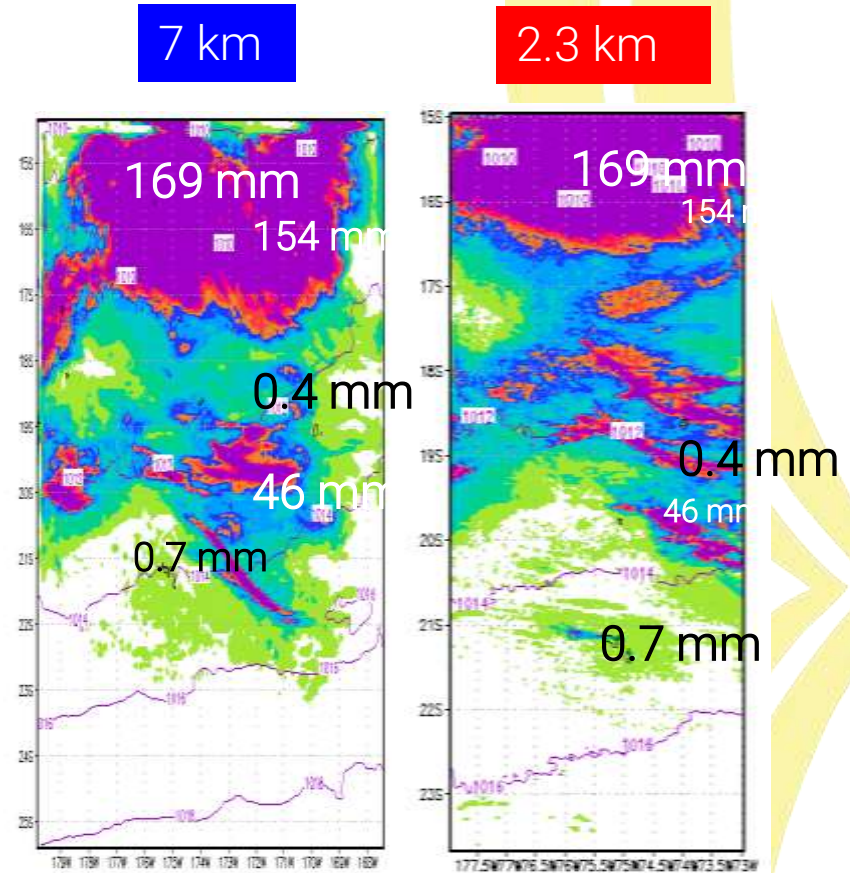


After



Pilot Project – Tonga

- Implementation of high resolution Weather Research Forecasting (WRF) up to 2.3 km
- Implementation of Common Alerting Protocol (CAP)
- On-site capacity building training
- Development of work plan to guaranty the sustainable usage of the implemented systems



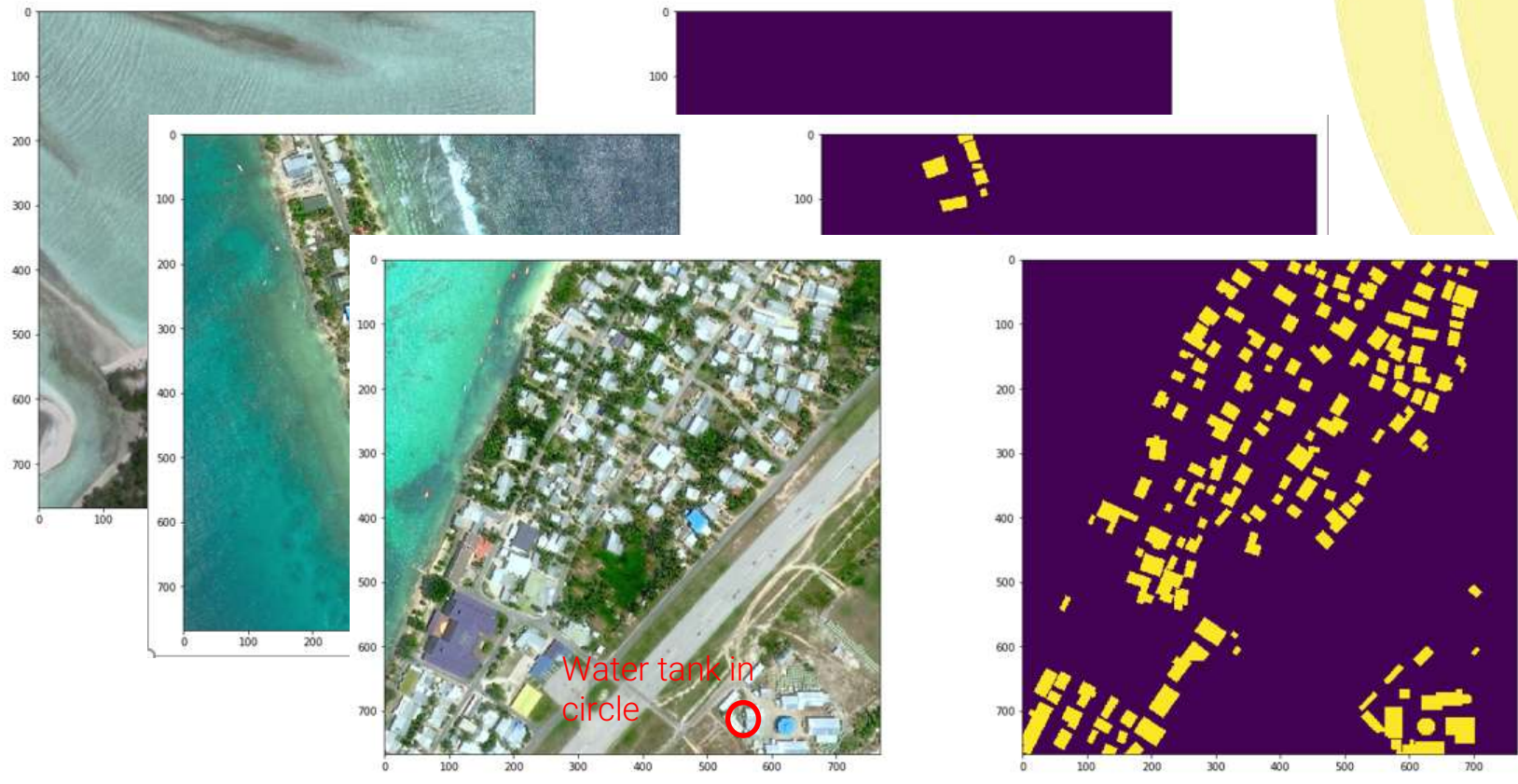
Asia-Pacific Plan of Action (2018-2030)

- Next action after the Plan of Action 2012-2017.
- In line with the ESCAP Regional Roadmap for the 2030 Development Agenda.
- Strengthen space technology applications and GIS for SDGs
- Priority areas: social development, disaster risk reduction and resilience, climate change, management of natural resources, connectivity, energy).
- Developing regional cloud based meta-data platform including the remotes sensing data, baseline maps, statistics and big data.

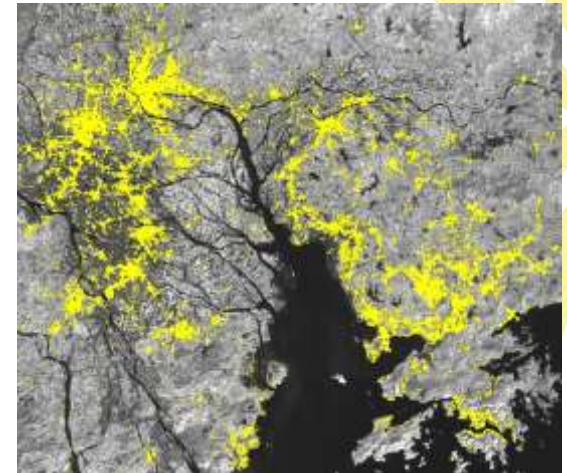
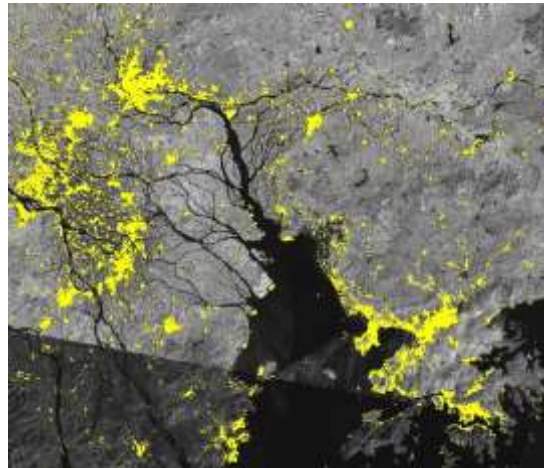
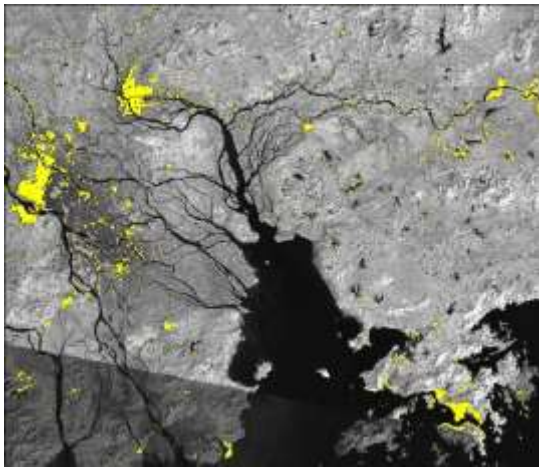
SPACE+ Ecosystem

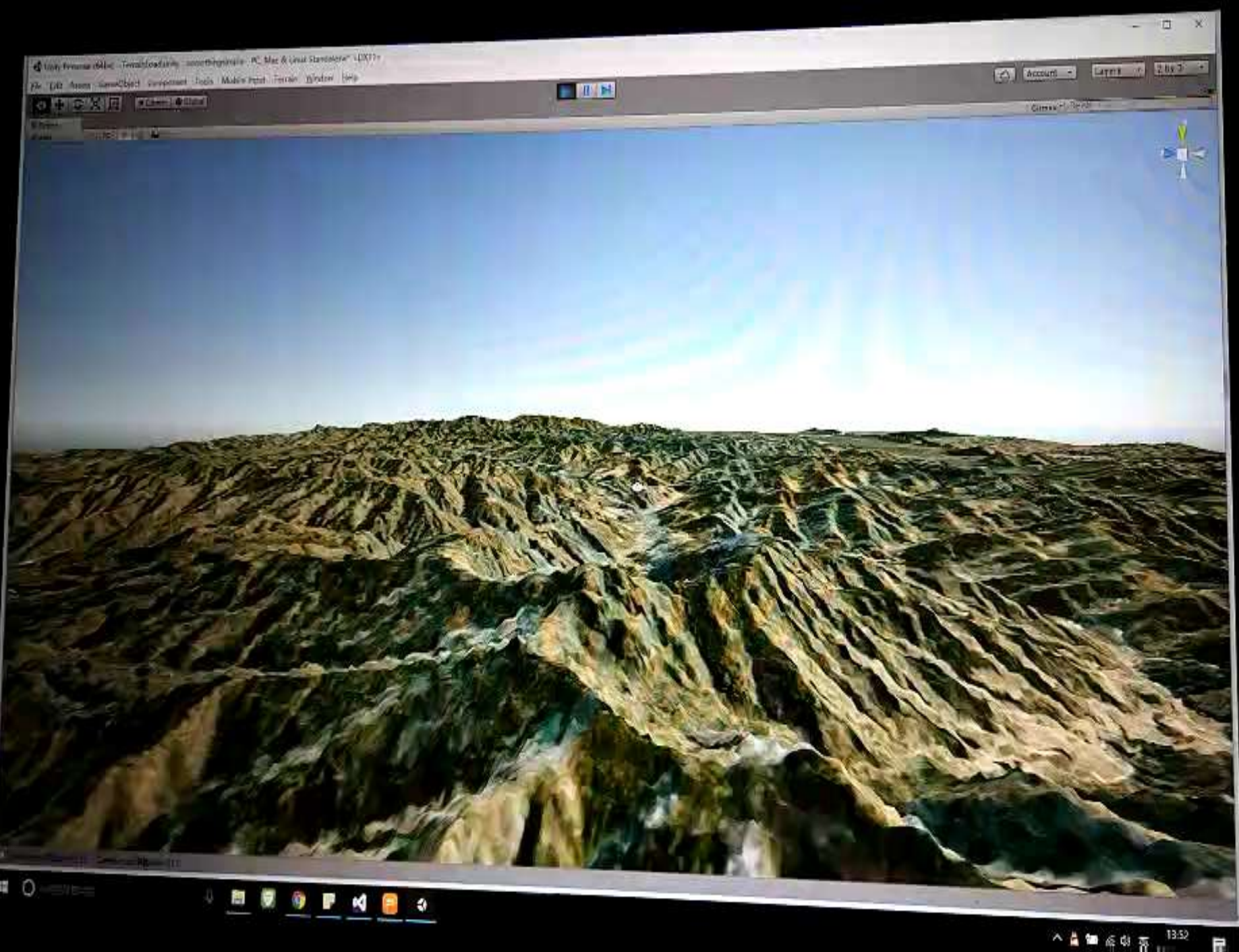
- + Frontier technologies: AI, IoT, big data, cloud computing.....
- + End users in sectors: transport, agriculture, disaster, environment, energy, urban,.....
- + Yong generation: brilliant and brave
- + Private sectors: creative and innovative
- + Partnership: UNOSAT, GGIM, GEO, CEOS, ...
- + Trust fund
- + Meta-data platform: cloud based, geo-referenced, sectoral data....

Machine learning helps to monitoring buildings in Tuvalu

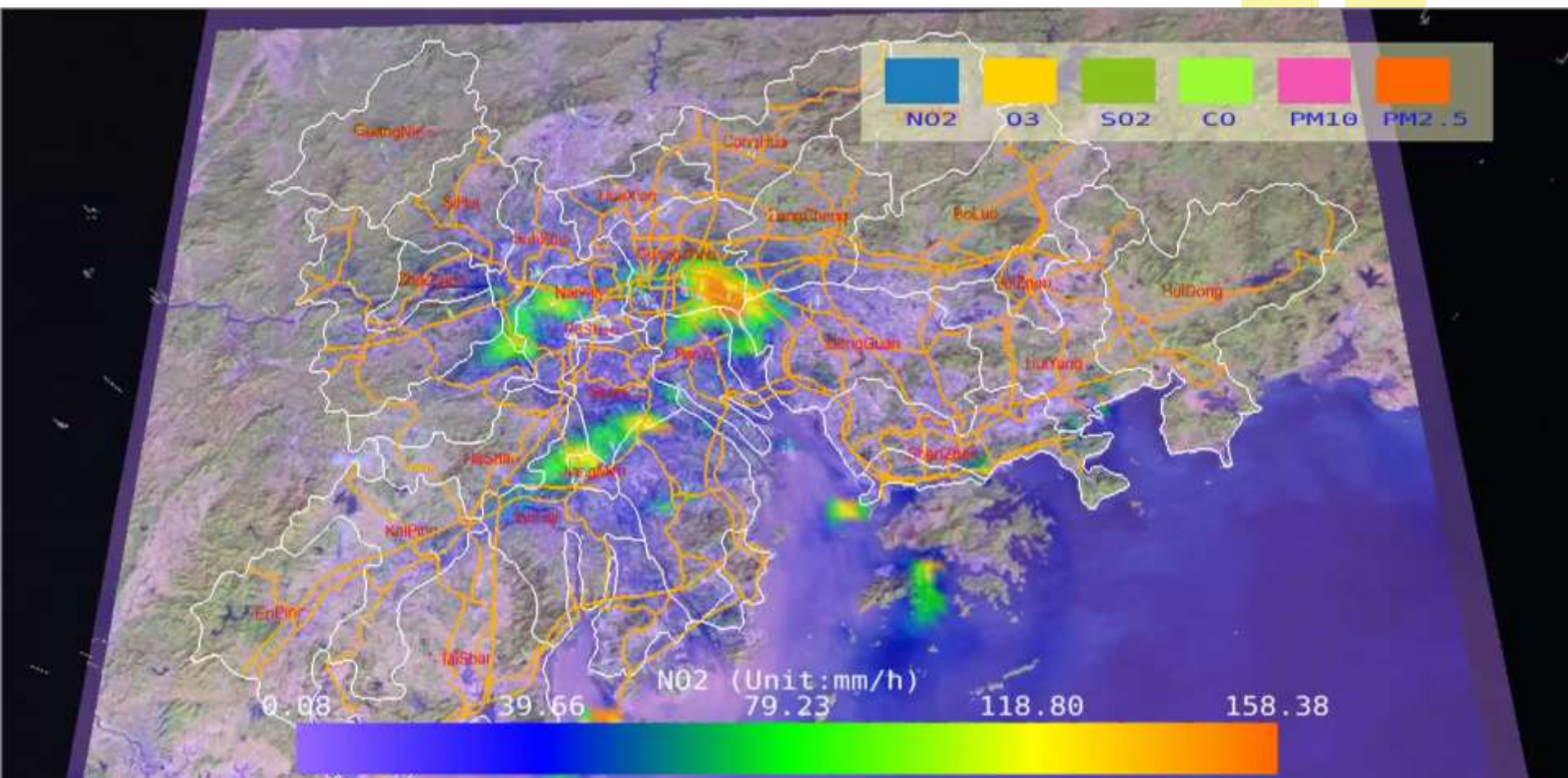


Mega city eco-system monitoring





Pearl River Delta Economic Zone 3D simulation (air pollution)

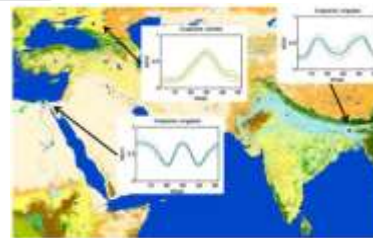


Big-Data Platform Conceptual Diagram

Thematic Apps

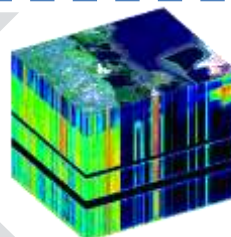
(Algorithm taken to Data)

Agriculture Environment Development



Exploit Data

DataCube
Google Earth Engine
Vector DB



Interoperability?



Ingest Data



Satellites



WorldPop



GHSL



GEG 2015



Other

Thank you!