



National Space Research and Development Agency

## BIG SPACE DATA FOR DISASTER MANAGEMENT IN AFRICA

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# Presentation Outline

- **Africa in Context.**
- **Big (Space) Data Usage for disaster management in Africa.**
- **Opportunities for the future use of Big (Space) Data in Africa.**
- **Wishes.....**



# Africa in Context (Natural Disasters)



Floods



Extreme  
Temperatures



Drought



Wildfire



Storms



Volcanic  
Activity



Earthquake



Landslide



## Big (Space) Data Usage for Disaster Management in Africa

- Over the past decade, the use of Big (space-based) data for disaster management has increased tremendously in Africa.
- This is as a result of the following factors:
  - Availability of Free Data Access through International mechanisms, such as :
    - International Charter: Space and Major Disasters (Multiple Satellites),
    - United Nations Platform for Space Based Information for Disaster Management and Emergency Response (UN-SPIDER),
    - Disaster Monitoring Constellation (DMC),
    - EU Copernicus Emergency Management Service.
  - Increase in image processing capability in Africa.



## Opportunities for the future use of Big (Space) Data for Disaster Management in Africa

- Ongoing Plans for the Establishment of African Space Agency.
- Increase in national space programmes: Algeria, Nigeria, Egypt, South Africa, Morocco, Ethiopia, Ghana.
- Enhance knowledge management in space technology e.g. regional training institutions e.g. ARCSTEE Africa regional Center for Space Technology Education in English (Nigeria) and French (Morocco).
- Domestication of Africa Space Policy and Strategy by the RECS e.g. ECOWAS is considering a space programme for the sub-region.
- Increase public awareness.

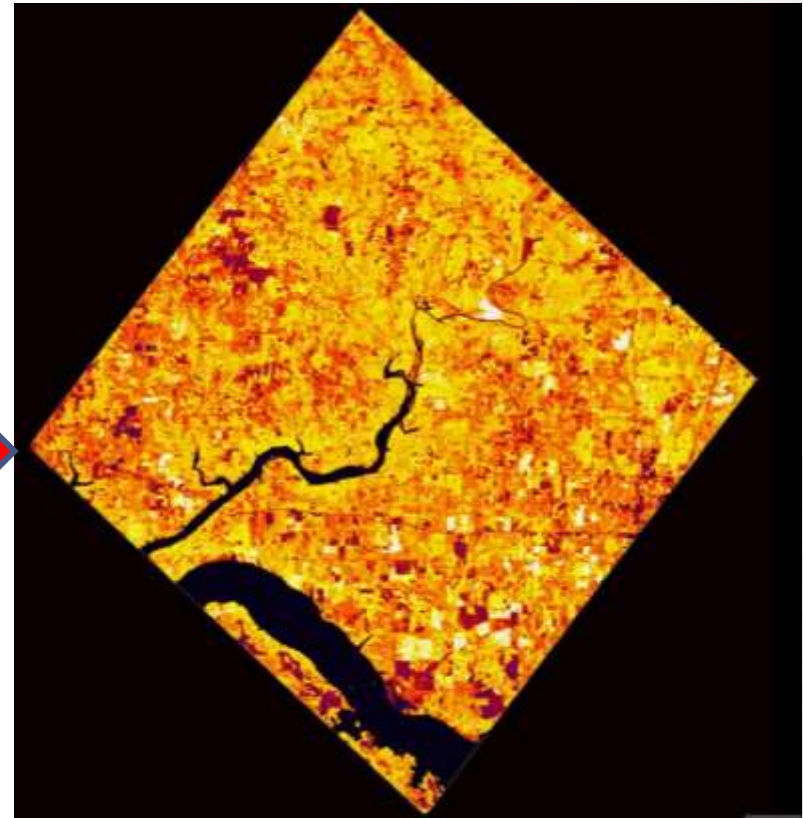


## Wishes for the use of Big (Space) Data for Disaster Management

Big (Space) Data (Multiple Sources)



Products for Disaster Management





## Wishes for the use of Big (Space) Data for Disaster Management

- **Spatial resolution:**
  - Pan. imagery with 1-3 m resolution, multi-spectral imagery with 4-30 m resolution and Radar imageries of 3 to 1000 m.
- **Swath:**
  - 4-40 km in optical imaging system, and 20-500 km for radar imaging.
- **Temporal Resolution:**
  - < 3 days with the ability to turn from side to side on demand towards decreasing the revisit interval.
- **Spectral Resolution:**
  - 5 to multiple bands hyper-spectral imagery.
  - Radar satellites with full polarization response functions.
- **Delivery time from acquisition to user:**
  - Imagery down linked in real time to ground stations located in Africa.



**Thank You**

