

## Report back on breakout group for Priority observation enhancements

### In situ observations

- Looked at in situ measurements for rainfall estimates and broader agricultural applications
- In situ discussions ranged around 2 aspects:
  - meteorological observations (particularly rainfall, but expandable application)
  - agronomic observations

- Recognizing that there are two issues regarding in situ rainfall data
  - there is need for better access to existing in situ data by agencies involved in agricultural monitoring for famine early warning and production monitoring at global and regional levels for incorporation into rainfall estimates used in agrometeorological models and other applications
  - there is need for densification of existing rain gauge networks especially in critical and poorly serviced areas, and also in view of a general decrease in station data over the last few years

- Regarding better access for regional and global applications:
  - GEO should advocate better access to existing station data, through engagement with Met Departments regarding data exchange policy, and adherence to resolution, especially through WMO
  - GEO should advocate for further increase of stations reporting on the GTS
  - where possible, rainfall climatologies made from historical in situ data should be used to “calibrate” and remove bias from operational satellite rainfall estimates
  - Pilot projects can be done illustrating the un-biasing of rainfall estimates using climatology

- Regarding the need for densification of existing station networks
  - From an Early Warning perspective, there is need that priority be given to vulnerable marginal areas already lacking in data
  - Action Item: A process will be defined for identifying these priority areas
- Recommendation: Where cooperative agreements are made for densification of stations these should as far as possible be on an open-data sharing framework

- Initiatives have already been identified for directly merging in situ rainfall data with rainfall estimates,
- It is recommended that GEO identify a few specific countries where cooperative activities could be carried out in a pilot phase for merging of in situ and satellite data
  - Action item: Countries to participate in this pilot project to be identified.

- There is a need for ground observations for validation and calibration of various EO agricultural products and methodologies
  - CAS IRSA offers to provide data from their experimental areas/plots which are large and representative areas where meteorological and agronomic data have been collected.
  - CAS IRSA already have several EO datasets from various platforms which can be provided together with the ground data for this purpose

- GEO can recommend setting up a network of experimental plots from all institutions willing to provide similar data, with verification of representativity of plot for general agriculture, or suitable metadata describing the data generated from the plots

- There is a need for availability of reliable historical yield/production data for verifying and calibrating EO/rainfall/production relationships
  - No action item was determined from this point
- There is a recognition of the presence of many national systems that collect various agronomic information such as crop condition and phenology at sub-national level, of which such information has the potential to be used as ancillary data in EO applications
  - No action item was determined from this point