

Copernicus Global Land conference

Summary of the users' recommendations

Copernicus Global Land User Conference
23 – 25 October 2018
The Météo France Conferences Centre, Toulouse, France
<https://events.uliege.be/copernicusgloballand/>

This report synthesises three days of discussions between users of the Copernicus Global Land Service or other remote sensing based products at the Copernicus Global Land User Conference (23 to 25 October 2018, The Météo France International Conferences Centre, Toulouse, France).

The objective of the conference was to gather views and recommendations from users in order to shape the Copernicus Global Land service for the future to better respond to identified needs improving the integration of products in operational applications and to increase user uptake.

This reports presents the users requirements on the Service as well as products specific recommendations (improvement of current products, needs for new products ...).

A. Users' recommendations on the service

1. Proper documentation and product description is essential.

- Since the beginning of the programme, great effort has been put to harmonise the documentation. It is now easier to find relevant information for the different products.
- Different level of information is needed depending on the level of the users (the PUM and ATBD already provide the information at different levels).
- It is important for the users to be able to quickly access information on the development stage of the product as well as on future developments.

2. Increasing the Programme and products visibility is crucial.

- More visibility should be put on the different sources of information (Copernicus Relays, helpdesk ...).
- Targeting specific communities with specific communication would increase the user uptake.
- Visibility of upcoming products (or new versions) should be increased by:
 - Providing users with a roadmap for the upcoming years.
 - Organising trainings and workshops, so that users can quickly learn how to handle it.
- The products catalogue should feature some examples of product's good use.

3. Continuity of the service and products should be ensured as to allow the users to guarantee the long term usability of their processing chains and viability of their project.

- Continuity of the service and products characteristics allows for longer time series. Continuity of the main missions and inter-calibration with the new ones is important to ensure the availability of long time series.
- A roadmap of upcoming products and version changes would allow the users to be kept informed on the service's evolution.
- Continuity of a product not only concerns versions of a product but also resolution, format of files ...
- Information on changes should be provided sufficiently in advance to help users prepare their processing chains.
- Products updates should not be too frequent as it could:
 - Disturb the users processing chains.
 - Compromise users trust in the product (this could be interpreted by the users that the product is not ready for dissemination).

4. Ease of access to the CGLS products is key.

- Users should be able to access data from different Copernicus Services with the same account.
- Users should be able to evaluate the data before downloading a large data set.
 - This would help in early stages of research, when users are prospecting for data.
 - Early release of a demo version of the product (e.g. for a specific area of interest) would allow the users to prepare their processing chain for the actual release of the product.
 - Being able to visualise a time series in a platform would constitute a great gain of time for the users as it would allow them to explore the time series before the download.

5. Ease of manipulation and use of the CGLS products is crucial.

- Large-sized files are a problem. Subsetting should be allowed when downloading a product.
- NetCDF is a very convenient format but other popular file format should be available, especially GeoTiff.
- A system of data cubes, allowing the users to download and process several products for the same region of interest would greatly facilitate data processing.

6. The community of users is a great resource in terms of product validation and quality monitoring.

- The CGLS should consider releasing a beta version of the product to allow users to perform tests on the sample.
- Users are not always aware of how to report problems or discrepancies in the products. The information should be clearly visible on the website.

7. Different levels of processing are needed for different types of users.

- Certain users have expressed the need for (pre) processing tools while other prefer to rely solely on their own processing chains.
- The community of users is a great resource for scripts or libraries. Exchanges should be encouraged and enabled by the CGLS.

8. Spatial resolution is an important feature of the products.

- High resolution data (Sentinel 2 resolution) is often required.
- Moderate resolution (300 m) constitutes a good option, allowing for monitoring at regional as well as national scale.
- 100 m products would constitute a great addition to the portfolio. It constitutes a good compromise between increased pixel purity and size of the data files.
- Maintaining low resolution (1 km) in the future is crucial as it would allow for longer time series, which are needed in a large variety of applications.

9. Length of the time series is important for a great number of applications.

- Older products formats and characteristics (product version, resolution) should be maintained as to ensure long enough time series.

B. Product specific recommendations

1. Personalised indices

- Users expressed interest in building their own indices.
- A platform or tool allowing users to build their own indices would be of great interest.
- A system of data cubes containing the reflectances would greatly facilitate the procedure.

2. Fused products

- Users expressed interest in products build from combination of satellites or sensors (Sentinel 2 & 3, Optical & Radar, Optical & Lidar).

3. Energy products

- Land Surface Temperature
 - A LST product at high resolution (Sentinel 2-type resolution) would be a useful product for crop production and water management.
- Energy Balance
 - Cloud cover maps are an important source of information on energy balance.
- Moisture Content
 - Moisture content for soil and vegetation would be appreciated.
 - SWI at current resolution is limited.

4. Snow products

- Higher resolution for snow cover would be appreciated (e.g. SWE at 1 km).
- Snow wetness would make a great addition to the portfolio (e.g. to study the snowpack dynamics).
- Snow products should cover then entire Northern hemisphere.

5. Vegetation products

- Crop-specific information
 - Land cover maps should include information on crop distribution or crop groups.
 - Information of crop rotation would constitute a useful product.
 - High temporal and crop-specific indicators (e.g. NDVI, FAPAR, LAI) from sentinel 2 would contribute to the improvement of crop models.

- Forest ecosystems
 - NDWI and EVI would provide a good alternative to NDVI which tends to saturate in forested areas (especially for coniferous forests where LAI is not as accurate).
 - SAVI and Chlorophyll Index would also constitute a great addition to the portfolio.
 - Tree heights would be very beneficial for wind applications. 5 m accuracy would be a good start.
 - Site Index would be useful for forestry
- Phenology
 - Near Real Time phenology (start, flowering, and end of season) is an important input for crop modelling or other agrometeorological monitoring (e.g. rangeland).

6. Land Use and Land Cover

- Land Cover
 - More land cover classes would be appreciated.
 - Long-term time series of land cover maps have a really high potential as they provide a solid background for change-detection analysis.
- Irrigation
 - A layer presenting irrigated and rainfed cultures would be valuable in crop monitoring and water management.
 - Information linked to the use of water would be interesting (e.g. monitoring of water reservoirs).

7. Meteorological data

- Users expressed a need for rainfall estimates.