



GLOBAL FLOOD MONITORING (GFM)

The **GFM (Global Flood Monitoring)** product is a near real-time service that complements the **Global Flood Awareness System (GloFAS)** of the **Copernicus Emergency Management Service (CEMS)**. It provides 24/7 global, continuous, and automated satellite-based monitoring of all land surface areas possibly affected by flooding.

Through the **GFM**, all incoming Sentinel-1 Synthetic Aperture Radar (SAR) images are processed by three flood detection algorithms in parallel, thus improving the robustness and accuracy of the flood and water extent maps.

From an on-demand mapping perspective, the **GFM's** breakthrough advantage is **timeliness**. As the service is fully automated, the risk of wasting precious time across the production chain, through human intervention, is eliminated. Moreover, the availability of the service through different access points (see below) makes **GFM** data products suitable for a wide variety of users: from national civil protection authorities to humanitarian bodies, global insurance companies and the general public.

24/7, CONTINUOUS, ALL-WEATHER, DAY-AND-NIGHT SERVICE AVAILABILITY

<8-HOUR TIME-LAG BETWEEN SATELLITE DATA ACQUISITION AND MAP PRODUCTION

10 FLOOD-RELATED DATA PRODUCTS INCLUDING OBSERVED FLOOD EXTENT, REFERENCE WATER MASK, LIKELIHOOD VALUES, AND IMPACTS

DATA PRODUCTS

GFM generates, seamlessly and in near-real time, 10 data product output layers, that can grouped into 4 categories:

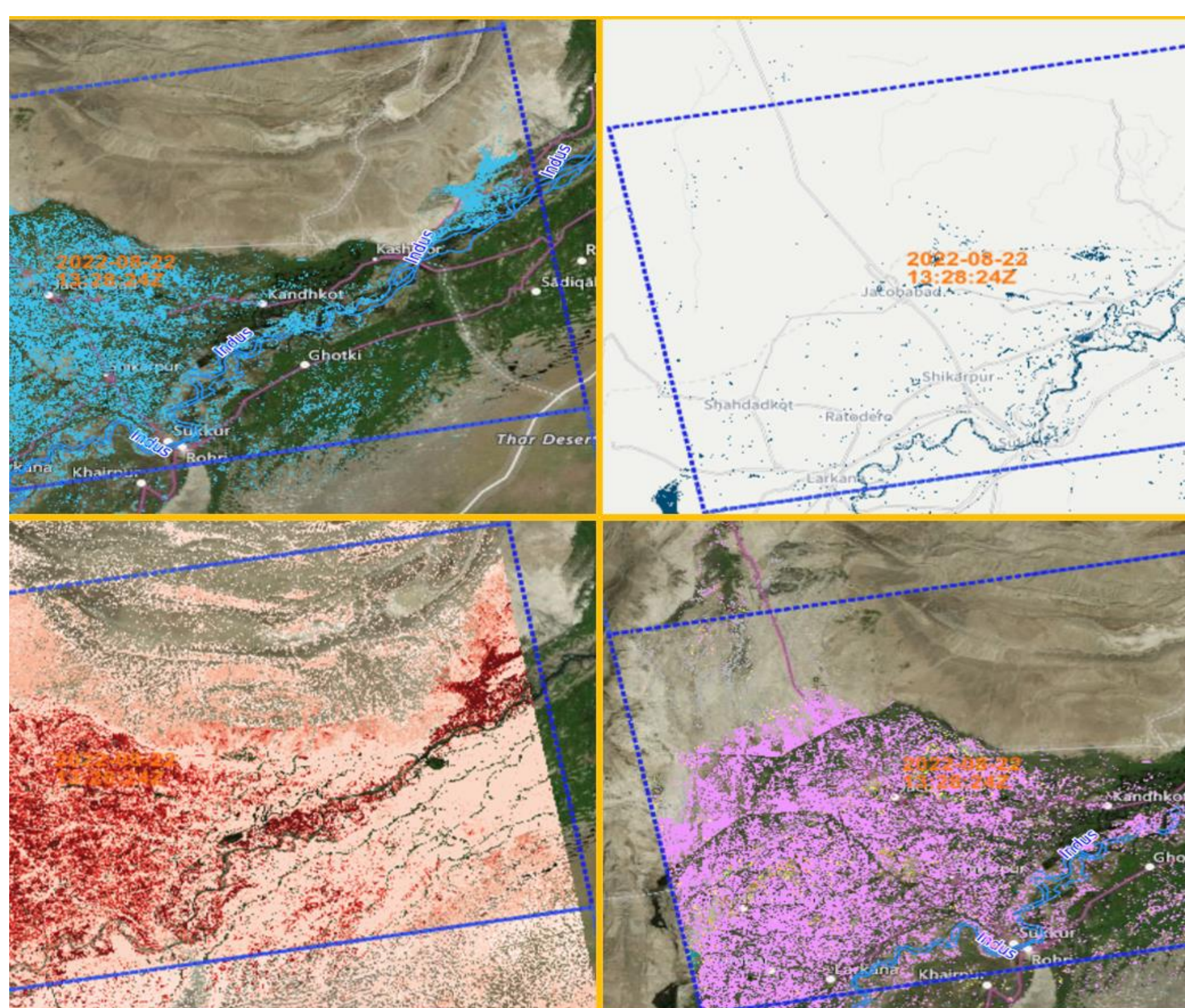
- **Flood extent and water bodies** show the observed flood extent, the reference water mask (including permanent and seasonally varying water), and the observed water extent, which is the composite of the two.
- **Flood impacts** include the affected population as well as the affected land cover type in the flooded areas.
- **Data quality** products provide insights on the Exclusion Mask, the Advisory Flags, and the flood classification likelihood values of the GFM output data.
- **Sentinel-1 ancillary data** provide a technical summary of the satellite imagery used, and next available overpass.

DATA ACCESS

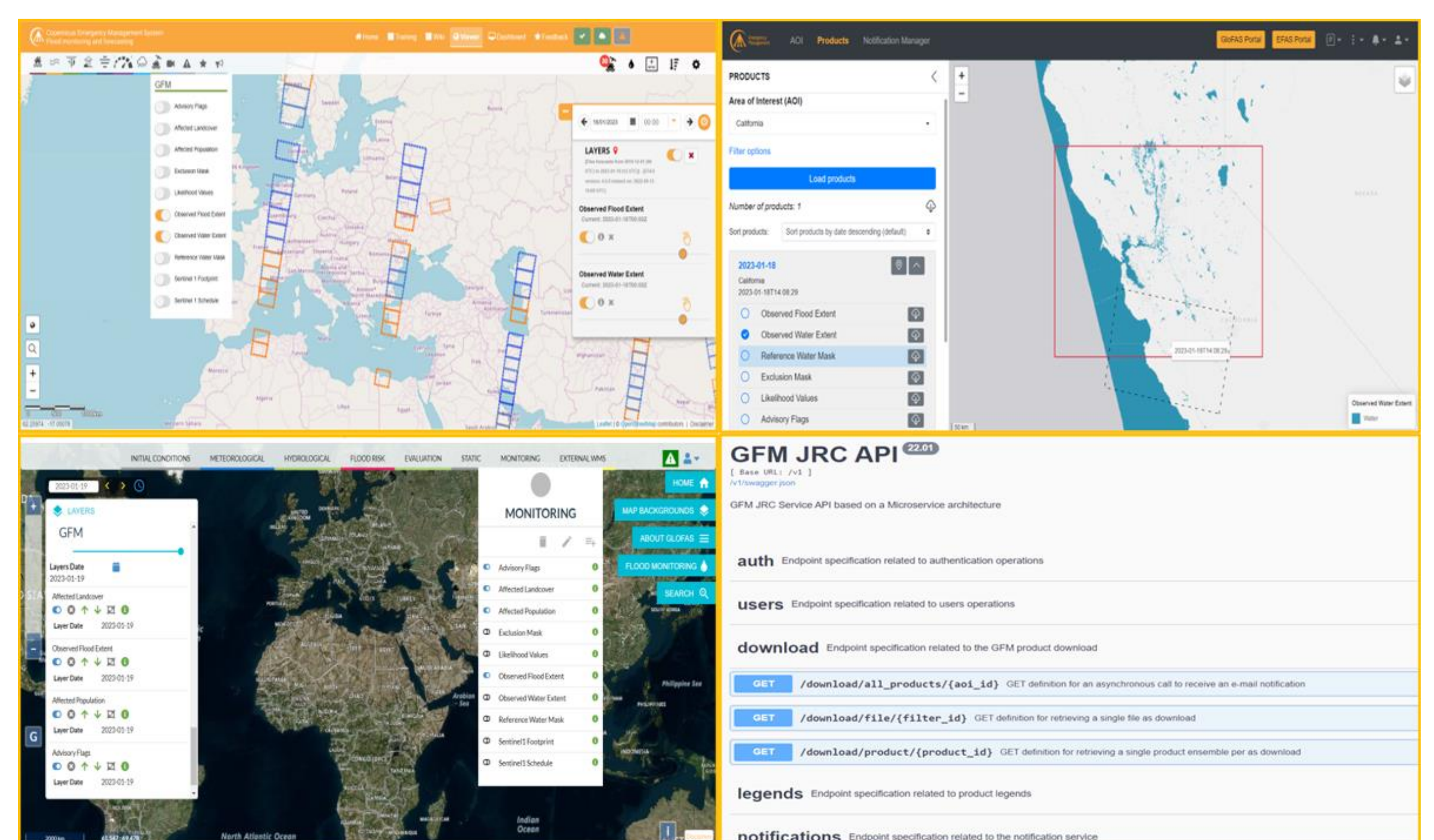
GFM data products can be accessed in the following ways:

- GloFAS (www.globalfloods.eu) and EFAS (www.efas.eu) map-viewers.
- GFM application programming interface (<https://api.gfm.eodc.eu/v2/>).
- GFM web-portal (<https://portal.gfm.eodc.eu/>), allowing users to: download data; receive web push notifications; configure social media connectors (X, formerly Twitter).

All of the GFM access methods will provide the latest available imagery for each Sentinel-1 overpass. Moreover, users can also request the full time-series (or a subset) of all the data products archived in GFM's database.



Examples of GFM data products: Observed flood extent (top-left, top-right), flood classification likelihood values (bottom-left), and affected land cover (bottom-right).



Accessing the GFM via the EFAS and GloFAS map viewers (top-left, bottom-left), the GFM web-portal (top-right), and the GFM application programming interface (bottom-right).

Further details on the GFM product, including the Product User Manual (PUM) and Product Definition Document (PDD), are provided at <https://extwiki.eodc.eu/GFM/>

