

# Global Flood Awareness System (GloFAS)

The Global Flood Awareness System (GloFAS) is an operational forecasting service designed to provide flood early warnings and flood monitoring on a global scale. Developed through a collaboration between the European Commission's Joint Research Centre (JRC) and the European Centre for Medium-Range Weather Forecasts (ECMWF), GloFAS is part of the Copernicus Emergency Management Service (CEMS).

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<https://global-flood.emergency.copernicus.eu>

### 1. Purpose and Mission

GloFAS aims to enhance flood preparedness and response by providing early warnings and continuous monitoring of flood conditions worldwide. It serves as a vital tool for disaster risk reduction and management, helping to mitigate the impacts of flooding on communities and infrastructure.

### 2. Technological Capabilities

GloFAS integrates various technological components to deliver accurate and timely flood forecasts:

- **Hydrological Modeling:** Uses a sophisticated hydrological model (LISFLOOD) to simulate river flows and floodplain inundation.
- **Meteorological Data:** Utilizes medium- and long-range weather forecasts from ECMWF, including precipitation and temperature data.
- **Real-time Data Integration:** Incorporates real-time observations and satellite data to update and validate flood forecasts.
- **Global Coverage:** Provides forecasts for all major river basins around the world, with a focus on both short-term (1-10 days) and seasonal (up to 4 months) flood forecasting.

### 3. Applications and Research Areas

GloFAS supports various applications in flood risk management and research, including:

- **Early Warning:** Issuing flood warnings to help authorities and communities prepare and respond to imminent flood threats.
- **Risk Assessment:** Identifying flood-prone areas and assessing potential flood impacts on infrastructure and populations.
- **Disaster Response:** Supporting emergency response efforts by providing up-to-date information on flood conditions.
- **Water Resource Management:** Aiding in the management of water resources by predicting river flows and reservoir levels.
- **Climate Change Studies:** Investigating the impacts of climate change on flood patterns and frequencies.

#### 4. User Interface and Data Accessibility

GloFAS offers a user-friendly web interface that provides access to flood forecasts and related information. Key features include:

- **Interactive Maps:** Visualizing flood forecasts, river flow simulations, and observed data on interactive maps.
- **Downloadable Data:** Offering downloadable datasets for further analysis and integration into local flood management systems.
- **Custom Alerts:** Allowing users to set up custom flood alerts based on specific thresholds and regions of interest.
- **Documentation and Training:** Providing comprehensive documentation, tutorials, and training resources to help users understand and utilize the system effectively.

#### 5. Global Reach and Impact

GloFAS covers all major river basins globally, providing critical flood forecasting information to countries and regions that may lack local flood forecasting capabilities. Its global reach makes it a valuable resource for international organizations, governments, NGOs, and researchers working on flood risk reduction and water management.

#### 6. Collaborations and Partnerships

GloFAS collaborates with various national and international organizations to improve its forecasting capabilities and extend its impact. Key partners include:

- **National Meteorological and Hydrological Services:** Collaborating on data exchange and validation of forecasts.
- **Humanitarian Organizations:** Providing flood forecasts to support disaster response and humanitarian efforts.
- **Research Institutions:** Partnering on research projects to enhance flood modeling and forecasting techniques.

#### 7. Notable Achievements

GloFAS has achieved several milestones in enhancing global flood awareness and response, such as:

- **Operational Forecasting:** Successfully transitioning from a research project to an operational service, providing continuous and reliable flood forecasts.
- **Disaster Response Support:** Assisting in disaster response efforts for major flood events, including providing critical information to support humanitarian interventions.
- **Scientific Contributions:** Contributing to the scientific understanding of global flood patterns and the impacts of climate variability and change on flooding.

#### Conclusion

The Global Flood Awareness System (GloFAS) is a cutting-edge tool in the field of

hydrology and disaster management. By providing accurate and timely flood forecasts, GloFAS supports global efforts to reduce flood risks, enhance preparedness, and improve response to flood emergencies. Its advanced modeling capabilities, global coverage, and collaborative approach make it an invaluable resource for managing and mitigating the impacts of floods worldwide.