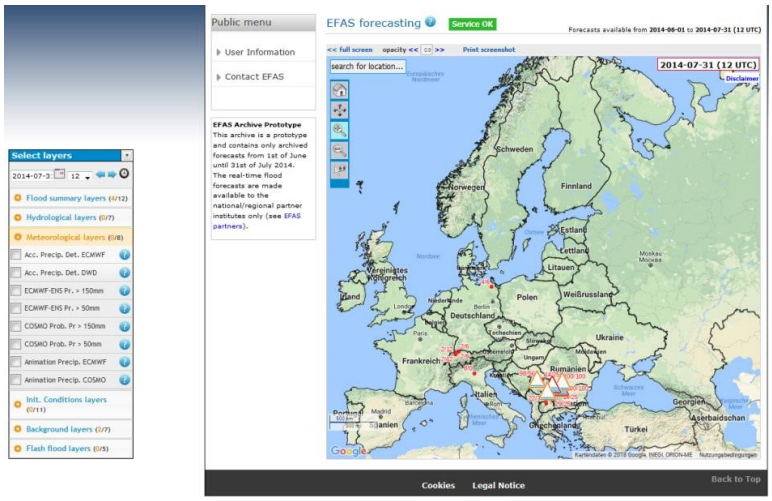
# 1.8 European Flood Awareness System (EFAS, European Union)

| OECD GP Activity | UN SF Activity | UN SD Goals / Targets |
|---|---|---|
| 1. Natural hazards identification and communication, NH (early) warning systems | 4. Enhancing disaster preparedness for effective response | 3.D Strengthen the capacity of all countries … for early warning , risk reduction and management of national and global health risks |

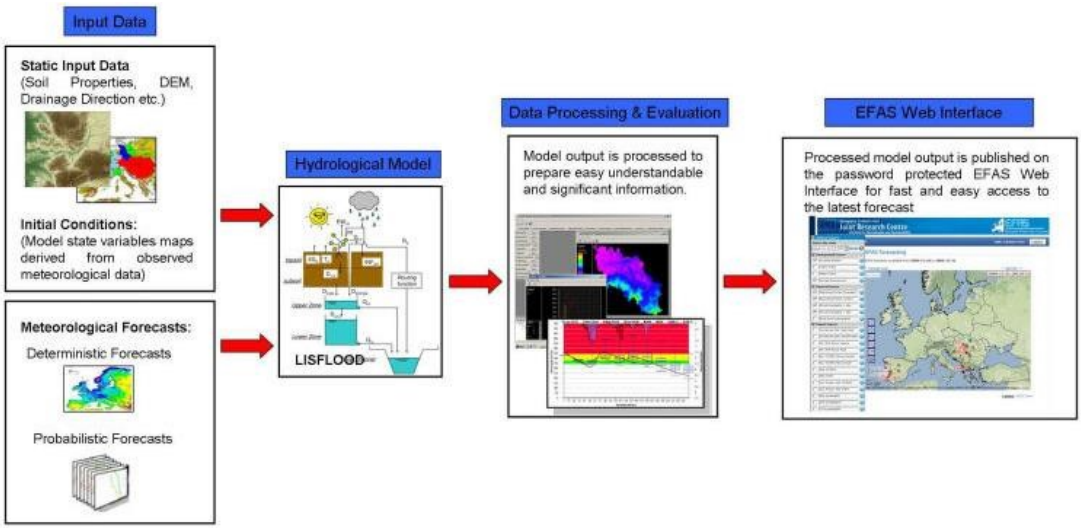
Classification according to OECD Guiding Principles, UN Sendai Framework Priorities/Activities, and UN SDGs and Targets

**Figure 1: EFAS forecasting map**




Source: © European Union, 1995-2018

**Figure 2: The EFAS concept and tools**




Source: © European Union, 1995-2018

| Short Facts: | Natural Hazard(s) Considered: |
|---|---|
| **Governance approach:** Hazard communication<br>**Source:** European Flood Awareness System (EFAS)<br>**Entry into force:** October 2012<br>**Targeted Stakeholders:** : National Hydrologic Services, European Response and Coordination System (ERCC)<br>**Scope of applicability:** International, catchment areas | • Flooding<br><br>**Climate change:** Effects are considered by integrating climate change conditions into the hydrological model |

## Description

After the extensive flooding of the Elbe and the Danube in 2002, and the varying, uncoordinated quality of the information from national flood warning systems, the European Commission decided to install the European Flood Awareness System (EFAS). EFAS set out to increase the preparedness for floods, focusing on European trans-national river basins. This is achieved by providing complementary flood early warning information up to 10 days in advance to the National hydrological services and by keeping the Emergency Response Coordination Centre (ERCC) informed about ongoing floods and about the possibility of upcoming floods across Europe.

EFAS forecasts are based on two deterministic and two probabilistic forecast models. The two deterministic forecasts from the European Centre for Medium-Range Weather Forecasts (ECMWF) and the German Weather Service (Deutscher Wetterdienst, DWD), rely either on short-term (up to two days or less) rainfall forecasts or on observation. The probabilistic models establish methods to determine an event occurrence and magnitude probability up to two weeks and are widely used nowadays in meteorology. The EFAS probabilistic models represent two different sets of ensemble prediction systems (EPS): one medium-range from ECMWF (< 15, spatial resolution ~30 km, 51 members), and one from the Consortium for Small-scale Modelling (COSMO) (shorter range <5 days, spatial resolution = 7 km, 16 members). The limited-area model EPS is used due to its finer grid information, especially for mountainous areas.

The hydrological model used is a rainfall-runoff model called LISFLOOD, developed by the European Commission's Joint Research Centre (JRC) which under the auspices of its Natural Hazards Project has established a floods group. The tool is especially useful for modelling large and transnational catchment areas, and includes multiple applications, such as: forecasts of floods, assessments of the effects of measures for river regulation, of land-use change, and of climate change.

To reduce false alarms, EFAS only provides information to the national hydrological services if there is a risk that flooding will exceed critical levels.

## Link/Contact:

https://www.efas.eu/european-flood-awareness-system-efas
http://publications.jrc.ec.europa.eu/repository/bitstream/JRC78917/lisflood_2013_online.pdf

## Comments by the UN/OECD Natech-Steering Group:

Transnational riverine systems require transnational flood forecasts systems. International or transnational cooperation is required to establish and operate those systems. From current data to alarms, the dissemination of information to operators of hazardous installations, authorities and the public should be coordinated.

## Imprint

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