

# Southeastern Asia – Oceania Regional Flash Flood Guidance System: Data Requirements



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# Motivation of the Presentation

The countries that will choose to participant in Southeastern Asia - Oceania Regional FFG System will receive a request for data. The objective of this presentation is to outline the data required and exemplify how it will be used.

## DATA REQUESTED FOR SEEFFG SYSTEM DEVELOPMENT AND COMPLETION

(As available in each country)

### Logistical Data (Metadata)

- Longitude and latitude coordinates (in decimal degrees) and elevation (in meters) of all sensors providing real time data and historical data, type of data, units of measurement and sensor.
- Longitude and latitude coordinates (in decimal degrees) of dams and reservoirs
- Evaluation of basin delineation: initial delineations based on hydrologic processing of the SRTM (90-m) resolution digital elevation data and hydrographic information from the Digital Chart of the World
  - Evaluation of the delineation results with local knowledge and expertise is required for final quality assurance
  - Delineation maps may be provided in GIS format, shapefile is preferred.

### Spatial Digital Data or Maps (for areas of interest)

- Digitized stream network data
- Digitized country catchment boundaries data
- Land-use and land-cover data
- Soils data to include soil texture or FAO soil classification or soil properties data, and

depth of upper soil and sub-soil

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- Local stream cross-sectional survey data for natural streams draining 10-2000km<sup>2</sup>, including any reports of regional relationships between channel cross-sectional characteristics and catchment characteristics
- GIS map of bedrock and alluvial channels
- Population distribution data

### Reports

- Flood Frequency Analysis (regional and local)
- Flash Flood Occurrence (regional and local)
- Stream geometry studies for small streams
- Climatological precipitation and flood studies

### Historical Data

- Precipitation data (hourly, daily, monthly, climatology)
- Air temperature data (hourly, daily, monthly, climatology)
- Pan evaporation data (daily, monthly, climatology)
- Soil moisture data for top 1 meter of soil (weekly, monthly, climatology)
- Streamflow discharge data for local streams with drainage areas less than 2000 km<sup>2</sup> (hourly, daily, monthly, climatology)
- Spring discharge data
- Stream stage data (hourly, daily, monthly, climatology) and associated stage-discharge curves (rating curves), also for local streams

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# Spatial Data

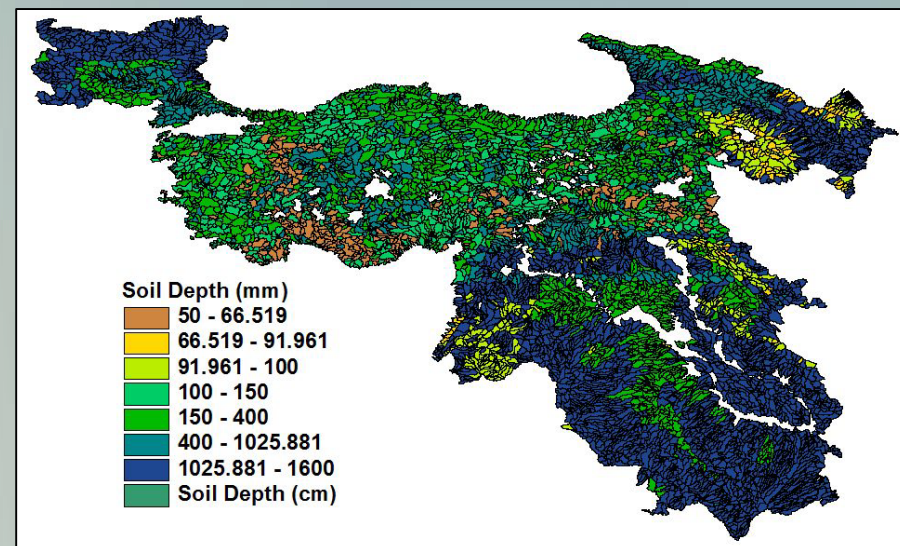
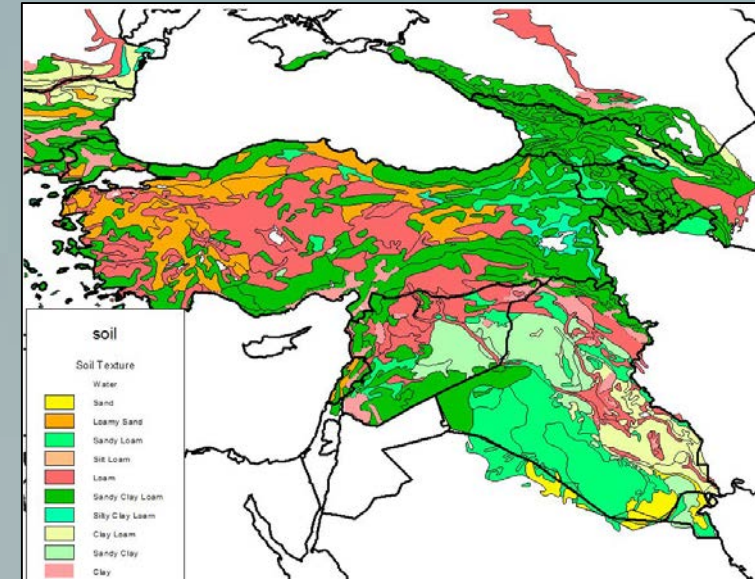
Purpose: Support parameterization of models  
(*digital format preferred, country data*)

- ❑ Soils information (soil type, soil depth)
- ❑ Land cover / land use data
- ❑ Maps of bedrock and alluvial channels

Purpose: Validation of watershed delineation and hydrologic network

- ❑ Digitized watershed boundaries
- ❑ Digitized stream network
- ❑ Channel surveys for small watersheds
- ❑ Coordinates of reservoirs (lat, lon)
- ❑ Urban Drainage Information

FAO-UNESCO Soils Map





# Real-Time Gauge Data

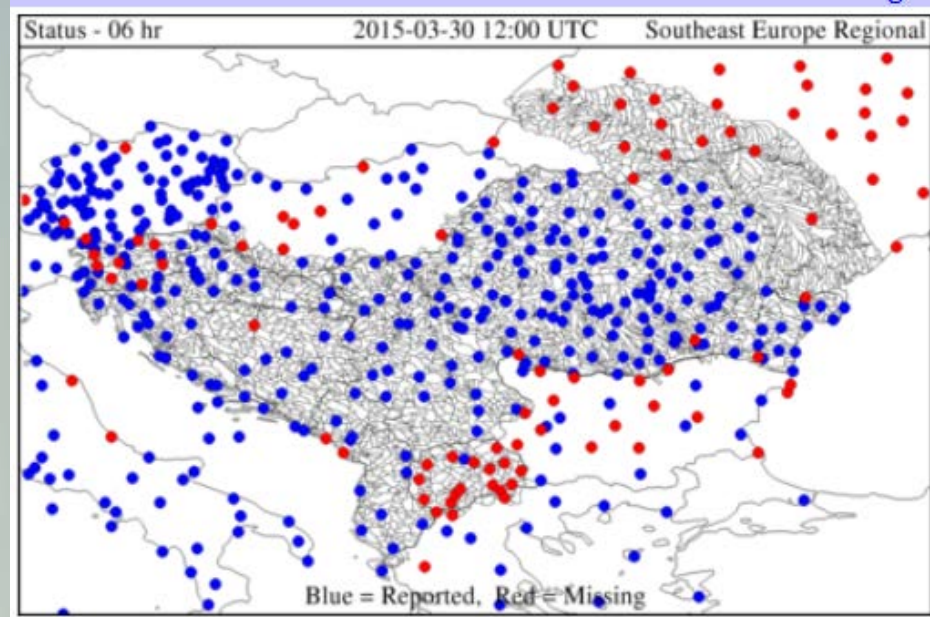
Real-time gauge data includes:

- (1) precipitation
- (2) temperature
- (3) stream discharge

Needs:

- Logistical data (metadata) including latitude/longitude coordinates of automated stations
- If stations are not included on GTS, discussion of accessibility and transfer to Regional Center

## Example from Southeast Europe



Purpose: provides real-time information to (a) rainfall processing to account for precipitation bias and (b) the real-time hydrologic modeling components (soil water, FFG).

# Historical Data

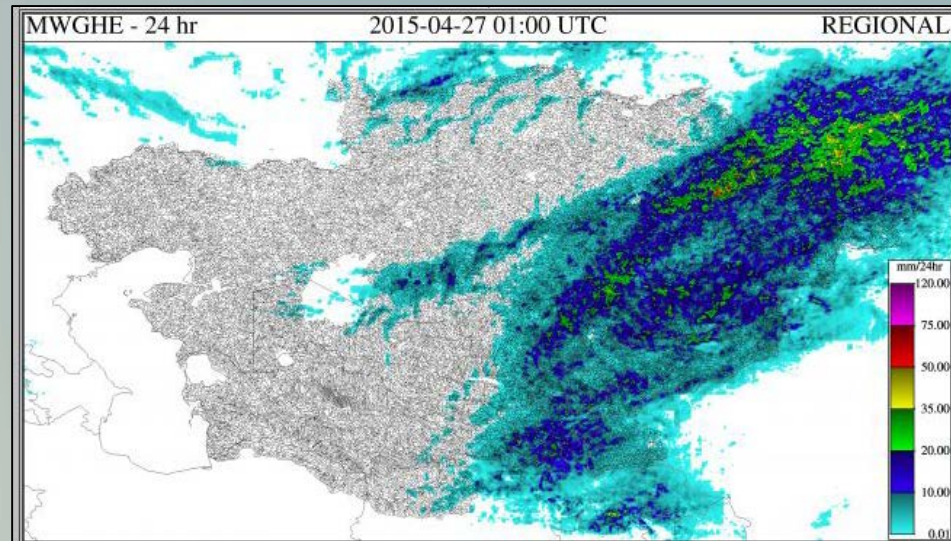
Variety of historical data is required.

All types of station require:

- ❑ Logistical data (metadata) including latitude/longitude coordinates of automated and manual stations

(1) Precipitation data

- ❑ hourly or 6-hourly *preferred*, or daily
  - period: 2012-present
  - analysis of bias in satellite rainfall (climatological bias adjustment)
- ❑ hourly, daily *preferred* (monthly)
  - calibration of hydrological modeling components
  - estimation of climatology



# Historical Data



## (2) Temperature

- ❑ Historical data, hourly, daily *preferred* (monthly, climatology)
  - estimation of climatology
  - estimation of diurnal cycle
  - estimation of potential evapotranspiration
  - calibration of snow modeling component

## (3) Pan evaporation

- ❑ Historical data (daily, monthly, climatology)
  - estimation of climatology
  - estimation of potential evapotranspiration

## (4) Radiation, Humidity, Wind data

- ❑ Historical data (daily, monthly, climatology)
  - estimation of potential evapotranspiration

# Historical Data



## (5) Landslide-occurrence data

- Historical data (as available)
  - calibration/validation of landslide component

## (6) Soil moisture data (top 1 m of soil depth)

- Historical data (weekly, monthly, climatology)
  - calibration of soil modeling component

## (7) Stream discharge data (or stream stage plus rating curves)

- Historical data, hourly, daily *preferred* (monthly)
  - validation of soil modeling component

## (8) Spring discharge data

- Historical data (as available)
  - calibration of soil modeling component



# SAOFFG System: Data Requirements

Please send me questions on Data Requirements:  
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**THANK YOU**