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# Guidance for Preparation of Flash Flood Warnings



**WMO OMM**

World Meteorological Organization

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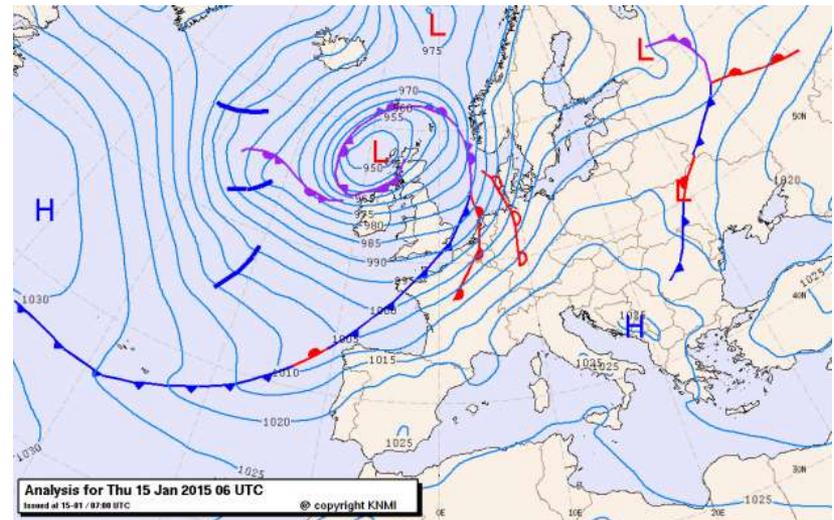
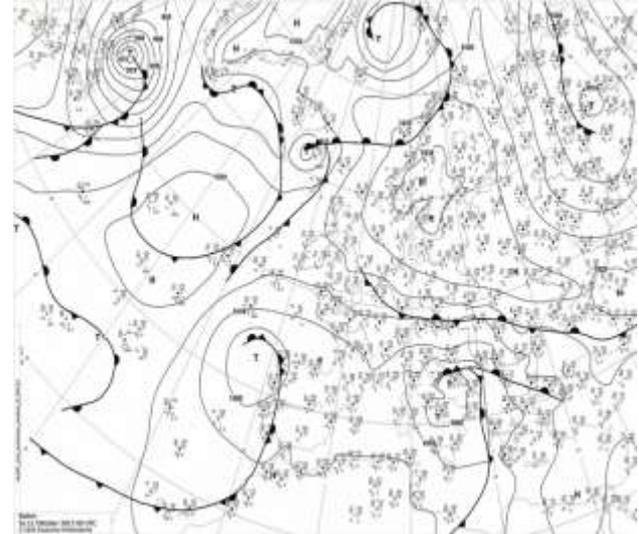
# Guidance for Preparation of Flash Flood Warnings

- In flash flood forecasting, forecasters should use all available tools to better understand weather situation in particular region, use locale knowledge and experience, and current situation from field.
- As usual, forecasters should first do synoptic scale analysis, mesoscale analysis and finally small scale analysis, and interpretation of FFGS products.
- As part of nowcast process forecasters should use satellite images, radar products and information from station.
- It is very important to take in consideration past weather events (few days) so one can get better images about soil moisture and stage of rivers.
- Also, flash floods can cause two different types of weather: big frontal system with heavy and steady rain and convective heavy rain with fast development.



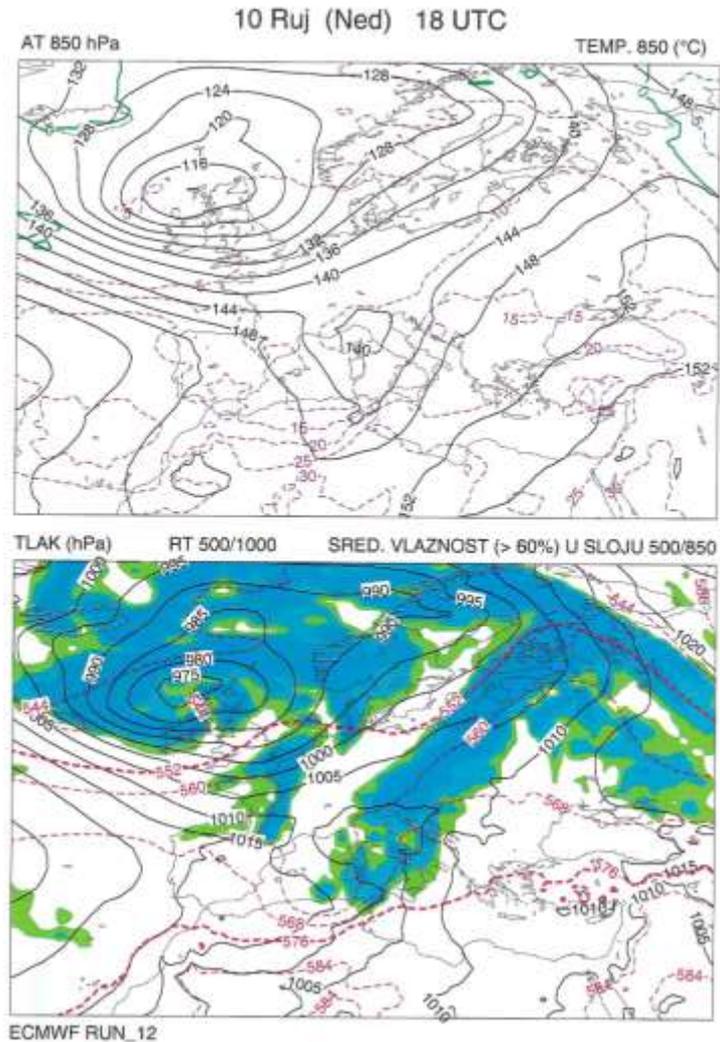
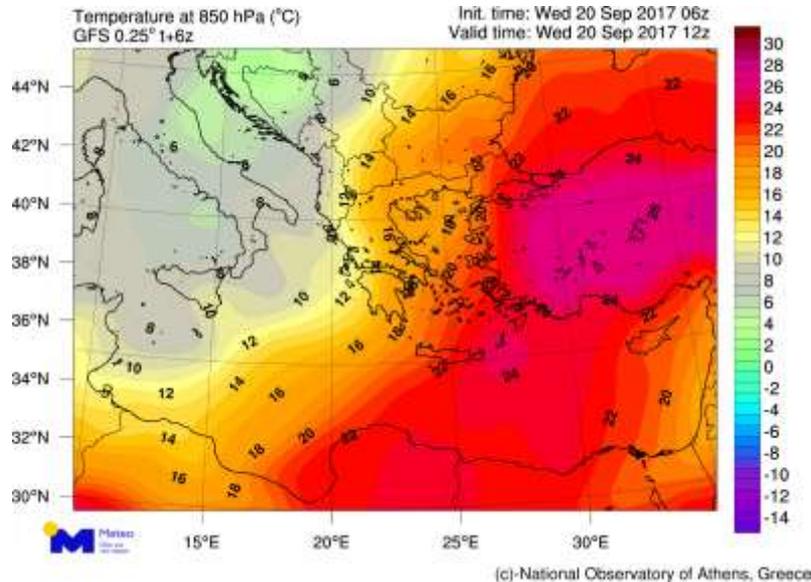
# Synoptic Analysis

- **Synoptic Analysis should contain:**
- **Surface analysis:**
  - Current weather
  - Low pressure systems and frontal systems and their movement in time
  - Winds
  - Precipitation types and amounts



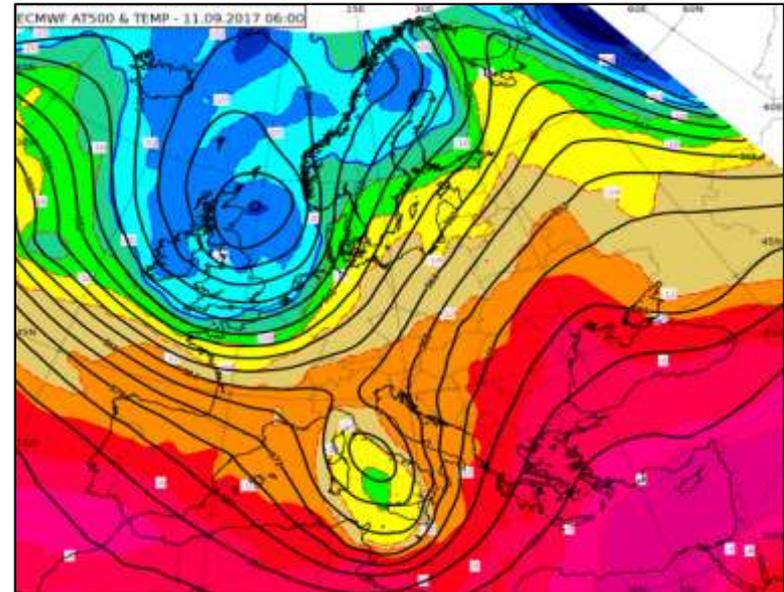
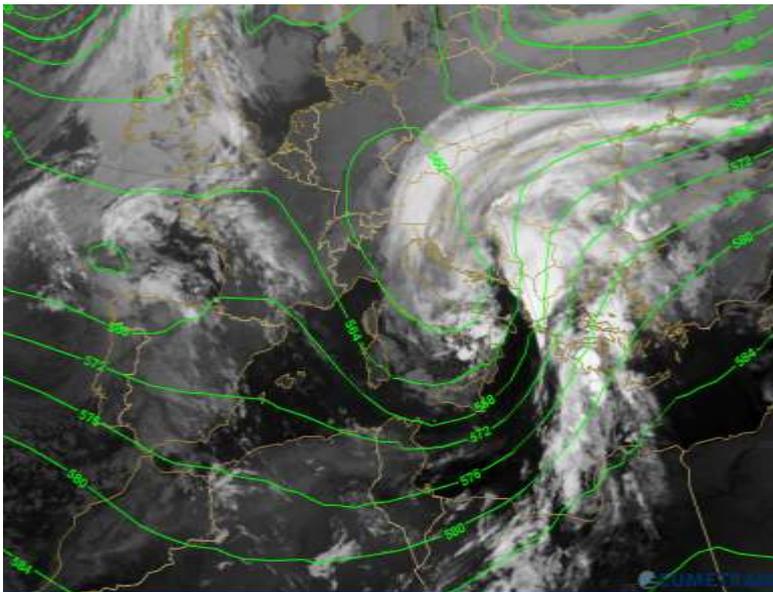
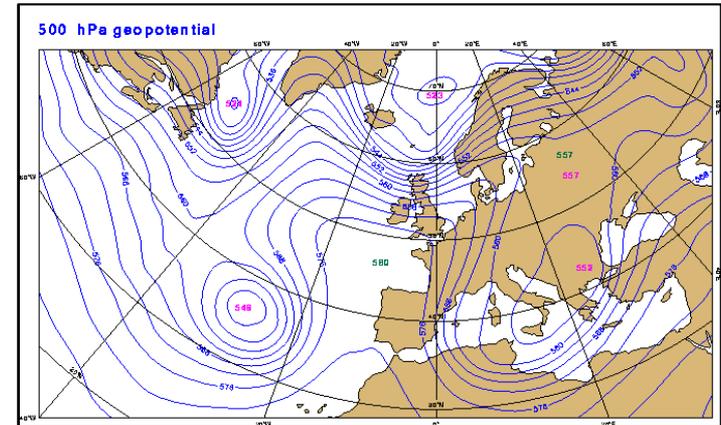
# Synoptic Analysis

- **850 hPa analysis:**
  - Trough and ridges
  - Warm and cold air advection
  - Low level convergence
  - Wind
  - Humidity



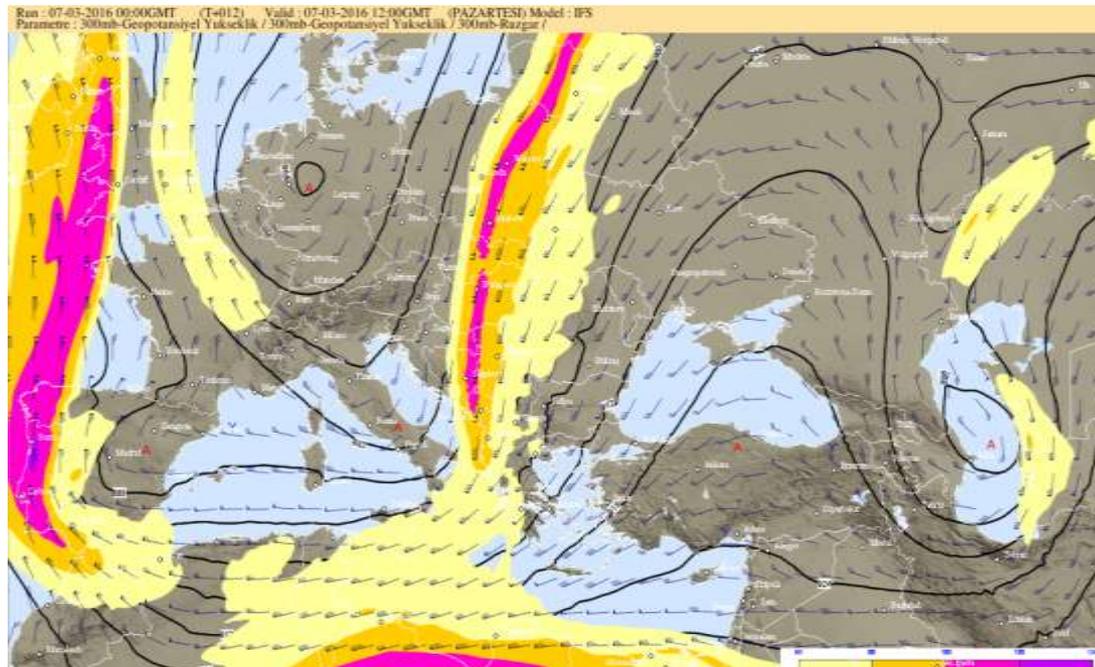
# Synoptic Analysis

- **500 hPa analysis:**
  - Trough and ridges
  - Warm and cold air advection
  - Convergence and divergence areas
  - Wind
  - Vertical motions



# Synoptic Analysis

- JET stream locations and movement in time
- Satellite images
- Various LAM models

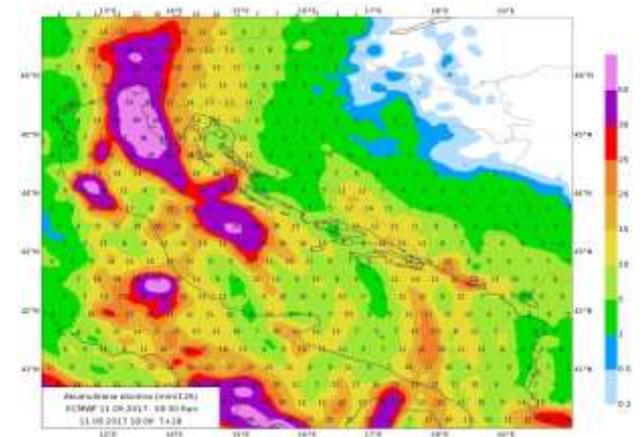
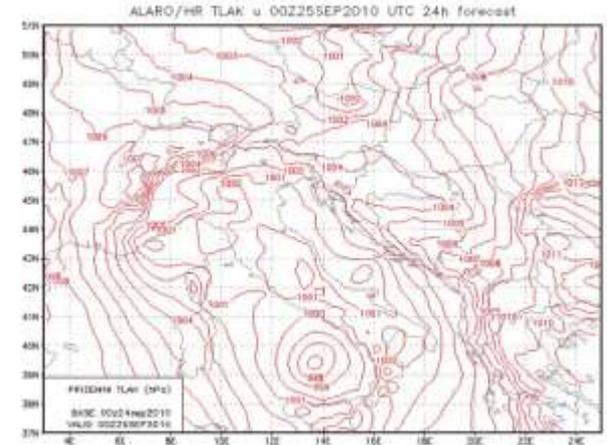


# Mesoscale Analysis

Mesoscale weather analysis should be more detailed with focus on local areas.

## Mesoscale Analysis should contain:

- Detailed surface analysis
- Dry line
- Gust fronts
- Instability
- Satellite images

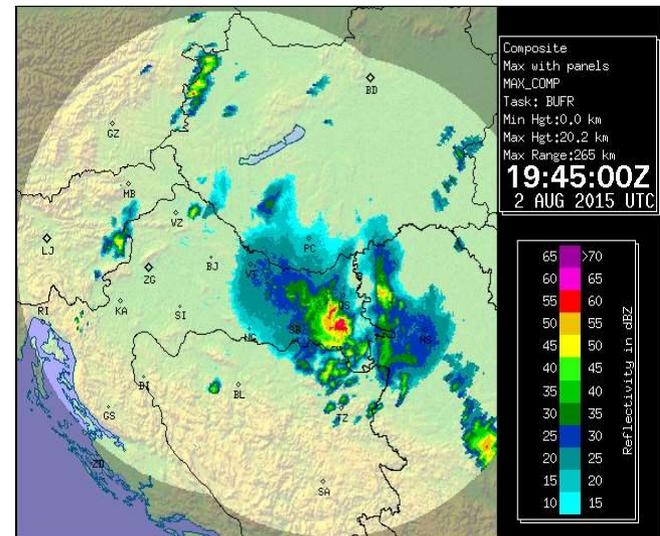
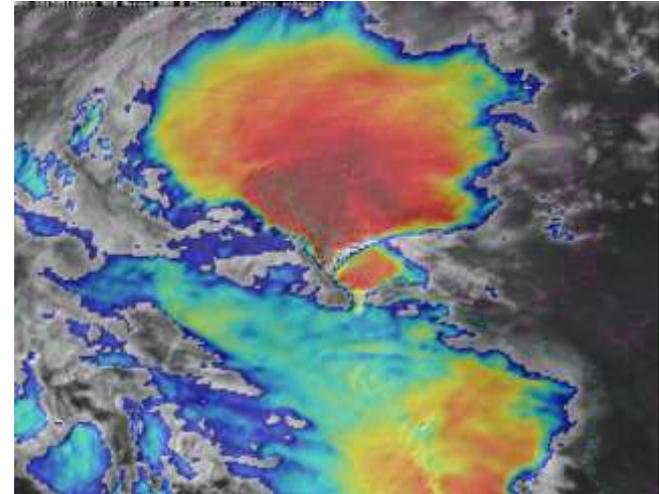


# Nowcasting Analysis

- Nowcasting is very short forecasting with high resolution spatial features.
- Analysis depends of available data and tools for better tracking of precipitation, thunderstorms development and movement.
- In nowcast analysis time is very important and every new information or radar/satellite scan can give us crucial information of potential dangerous weather.

- **Nowcasting Analysis should contain:**

- Instability analysis
- Precipitation analysis and forecast
- Ground observations
- Satellite images
- Radar images
- Lightning detections





# Thank you

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For more information please visit:

<http://www.wmo.int/ffgs>

<http://www.hrcwater.org>