Severe Weather Phenomena in Greece between 16 and 18 January 2016

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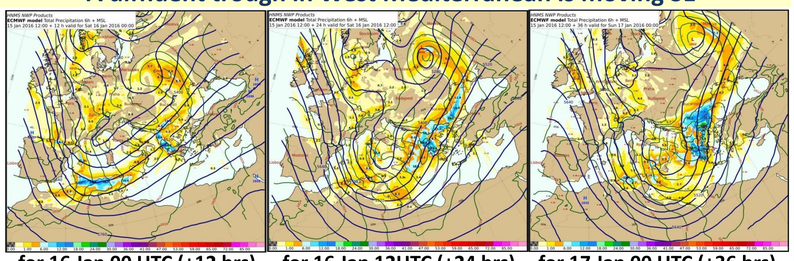
World Meteorological Organization · ECMWF · EUMETNET · ECOMET · COSMO · EUMETSAT

HNMS's Mission and Main Tasks

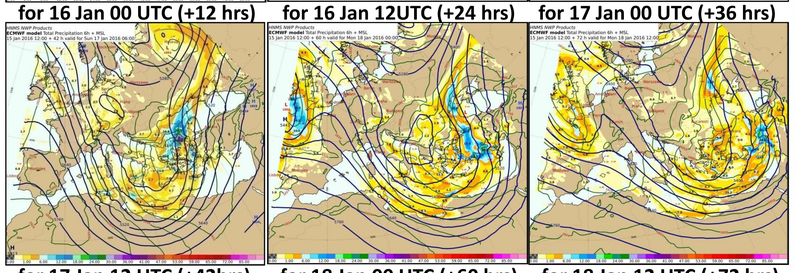
HNMS provides meteorological support to the sectors of Greek National Defense, Economy and Greek Society. Except from weather forecasts and warnings, HNMS is responsible for sea bulletins for shipping and warnings for the **Central** and **East Mediterranean Sea** and the **Black Sea**. Also, provides aviation forecasts for **46 aerodromes**. HNMS is certified **EN ISO 9001: 2008 for the quality management system of aviation and marine forecasts.**

Available Forecasting Tools from ECMWF 12 hours before (run 15 Jan 2016 12 UTC)

Geopotential Height 500hPa+Total Precipitation 6h+MSL
A diffluent trough in West Mediterranean is moving SE

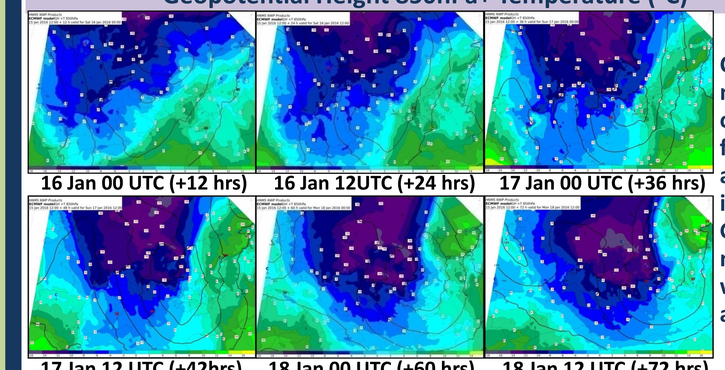


for 16 Jan 00 UTC (+12 hrs) · for 16 Jan 12UTC (+24 hrs) · for 17 Jan 00 UTC (+36 hrs)



for 17 Jan 12 UTC (+42hrs) · for 18 Jan 00 UTC (+60 hrs) · for 18 Jan 12 UTC (+72 hrs)

Geopotential Height 850hPa+ Temperature (°C)

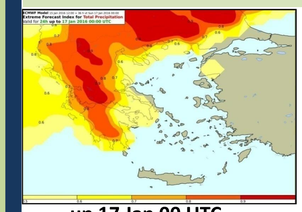


16 Jan 00 UTC (+12 hrs) · 16 Jan 12UTC (+24 hrs) · 17 Jan 00 UTC (+36 hrs) · 17 Jan 12 UTC (+42hrs) · 18 Jan 00 UTC (+60 hrs) · 18 Jan 12 UTC (+72 hrs)

Cold air masses originating from Polar advance into Greece meeting warmer air masses

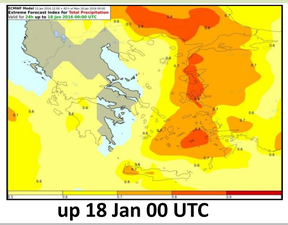
Use of other ECMWF Products

Extreme Forecast Index (EFI) for Total Precipitation valid for 24h



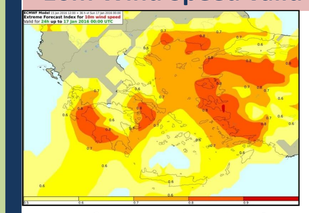
up 17 Jan 00 UTC

EFI > 0.8 in mainland and in East Aegean islands signifying very unusual rainfall is likely.



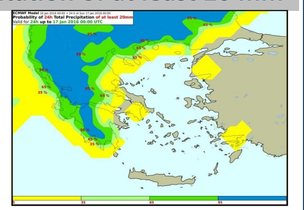
up 18 Jan 00 UTC

Extreme Forecast Index (EFI) for 10m Wind Speed valid for 24h



EFI of about 0.7-0.8 in Aegean, Attica and west Peloponnese indicates that an extreme wind is more likely than usual.

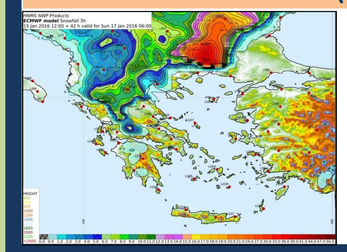
Probability of 24h-Total Precipitation of at least 20 mm



up 17 Jan 00 UTC

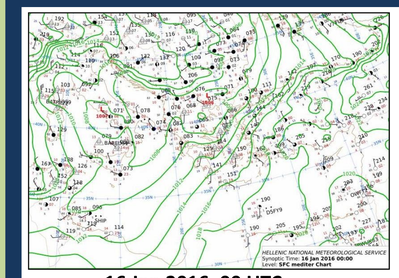
A 95 % risk of precipitation > 20 mm /24 in west and north Greece.

Snowfall 3h (run 15 Jan 2016, 12 UTC)

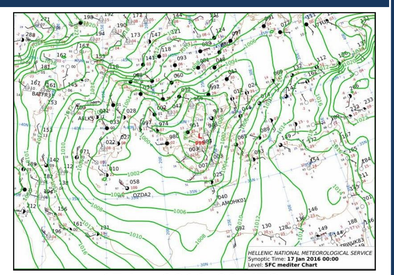


Snowfall prediction for 17 Jan 2016, 06 UTC from the deterministic ECMWF model.
Large amount of snowfall was predicted for northern Greece.

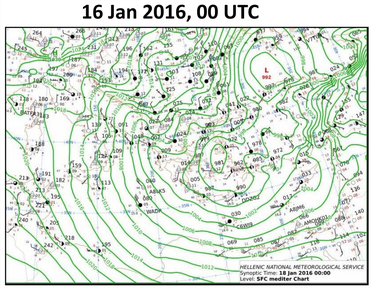
Analysis Maps (MSL)



16 Jan 2016, 00 UTC



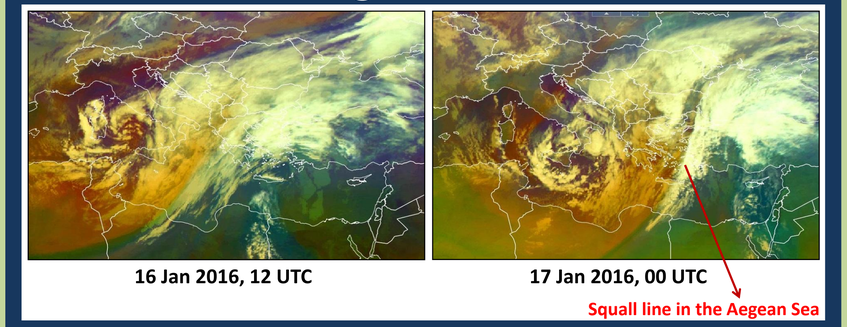
17 Jan 2016, 00 UTC



18 Jan 2016, 00 UTC

Low pressure over Italy is moving east. Twenty-four hours later the low center of 995 hPa associated with fronts was progressed over the northwest Aegean causing heavy rainfalls, a squall line of thunderstorms and strong surface southerly winds of 8-9 Beaufort in the Aegean Sea.

Satellite Images from EUMETSAT

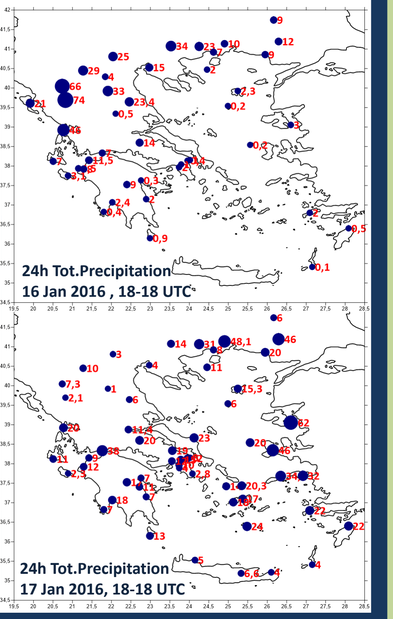


16 Jan 2016, 12 UTC · 17 Jan 2016, 00 UTC

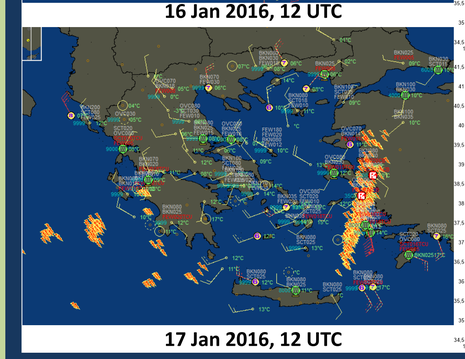
Squall line in the Aegean Sea

What actually happened ?

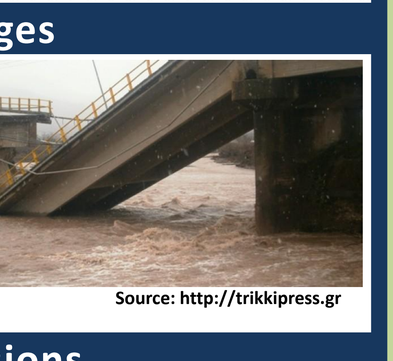
16 Jan 2016, 12 UTC



24h Tot.Precipitation
16 Jan 2016 , 18-18 UTC



17 Jan 2016, 12 UTC



24h Tot.Precipitation
17 Jan 2016, 18-18 UTC

Damages

Bridge collapse in Kalambaka (central Greece) due to heavy rainfall and rushing waters of Pinios river.

Source: http://trikkipress.gr

Conclusions

In general, precipitation especially in west Greece and eastern Aegean as well as strong southerly winds in the Aegean Sea were successfully predicted from ECMWF products. However the ECMWF deterministic model overestimated snow accumulation.

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