

ECMWF Severe Event Catalogue

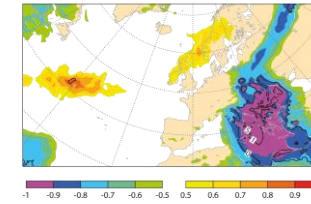
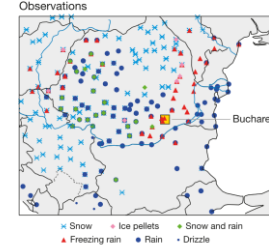
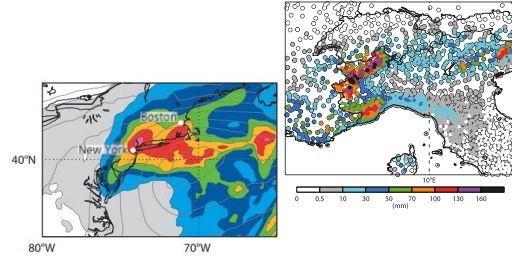
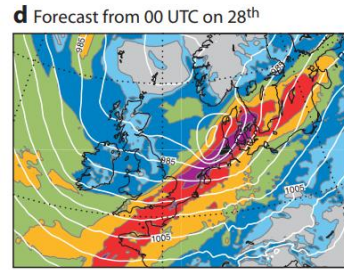
Linus Magnusson



The annual cycle of extremes

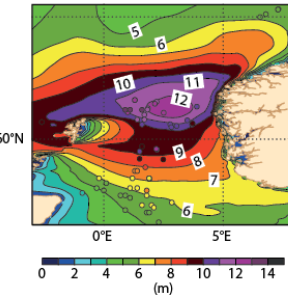
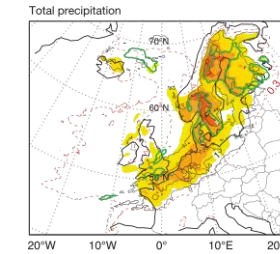
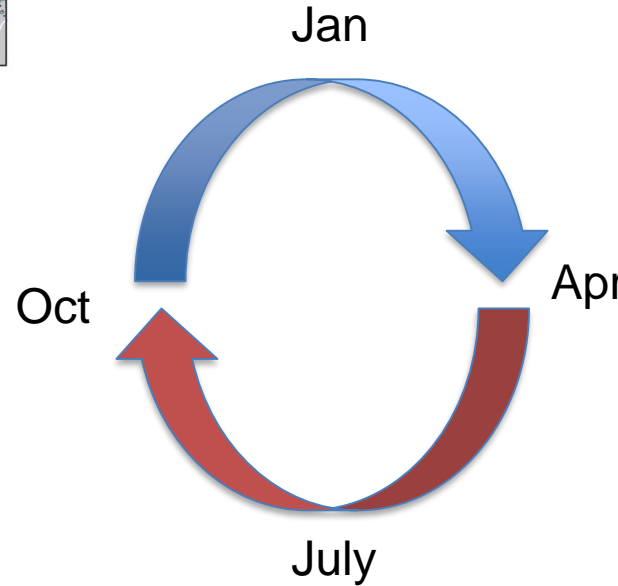
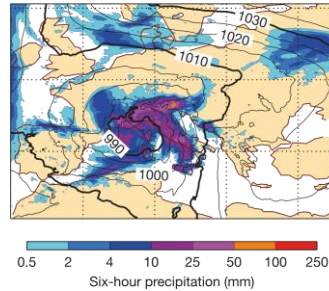
Snow and cold spells

Autumn windstorms



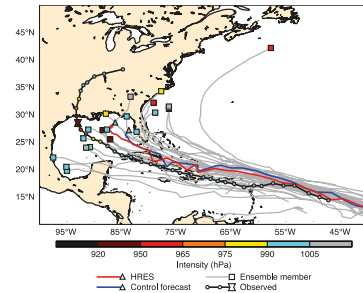
Winter windstorms

S. Europe flash floods

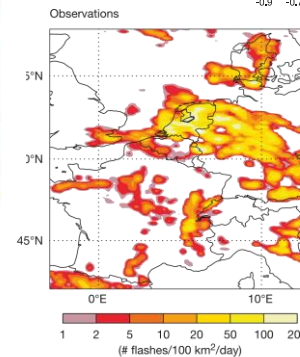
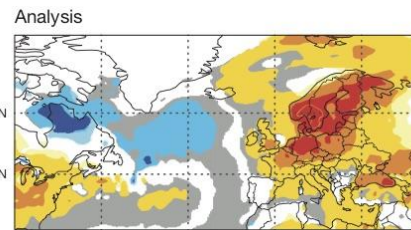


Floodings

Hurricanes



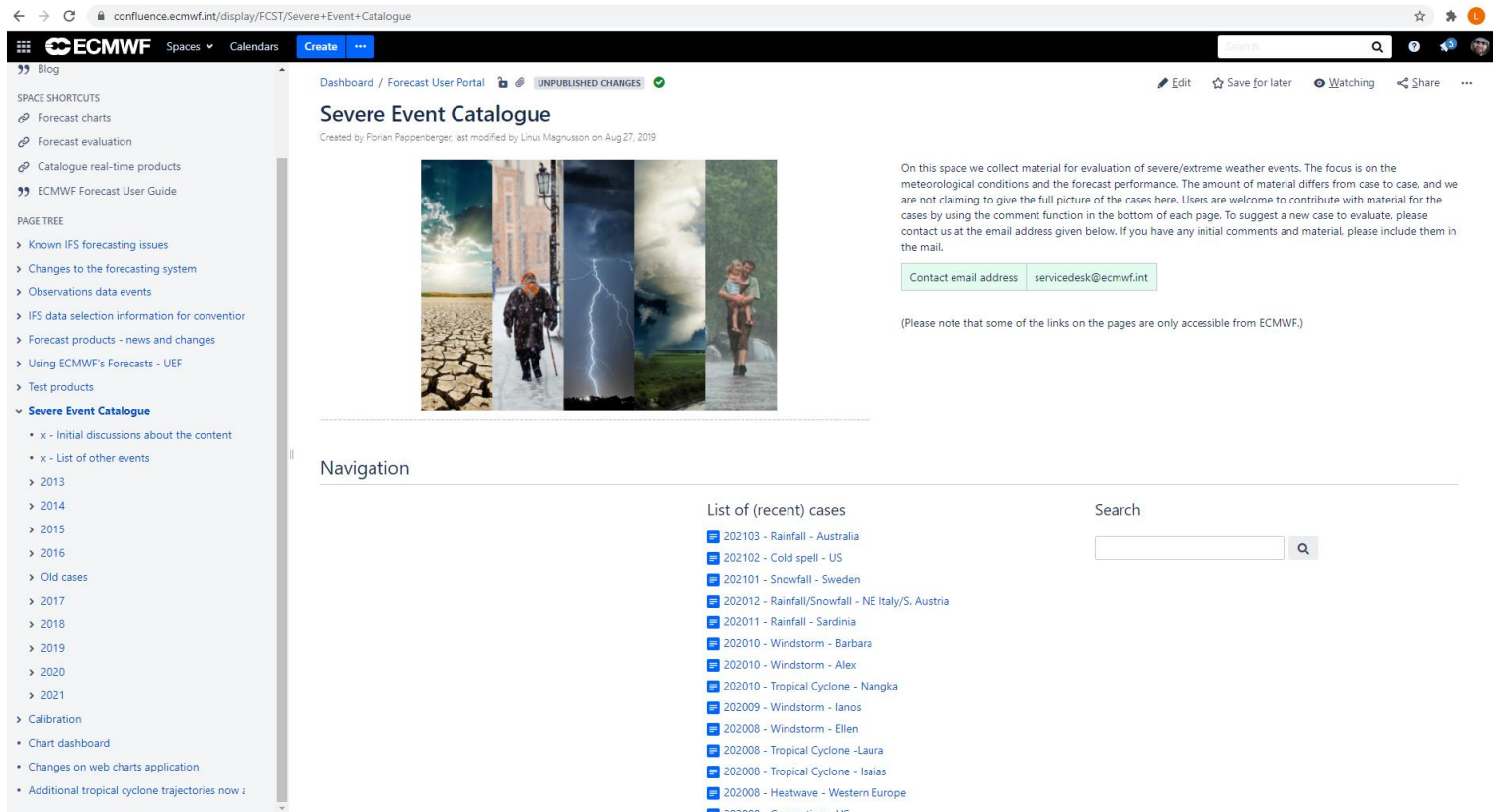
Heatwaves



Convective events

ECMWF Severe event catalogue

- <https://confluence.ecmwf.int/display/FCST/Severe+Event+Catalogue>
- ~140 cases since 2013



The screenshot shows the ECMWF Severe Event Catalogue page. The page title is "Severe Event Catalogue" and it was created by Florian Pappenberger, last modified by Linus Magnusson on Aug 27, 2019. The page content includes a description: "On this space we collect material for evaluation of severe/extreme weather events. The focus is on the meteorological conditions and the forecast performance. The amount of material differs from case to case, and we are not claiming to give the full picture of the cases here. Users are welcome to contribute with material for the cases by using the comment function in the bottom of each page. To suggest a new case to evaluate, please contact us at the email address given below. If you have any initial comments and material, please include them in the mail." Below the text is a contact email address: "Contact email address servicedesk@ecmwf.int". A note states: "(Please note that some of the links on the pages are only accessible from ECMWF.)". The page also features a "Navigation" section with a "List of (recent) cases" and a "Search" box. The list of cases includes: 202103 - Rainfall - Australia, 202102 - Cold spell - US, 202101 - Snowfall - Sweden, 202012 - Rainfall/Snowfall - NE Italy/S. Austria, 202011 - Rainfall - Sardinia, 202010 - Windstorm - Barbara, 202010 - Windstorm - Alex, 202010 - Tropical Cyclone - Nangka, 202009 - Windstorm - Ianos, 202008 - Windstorm - Ellen, 202008 - Tropical Cyclone - Laura, 202008 - Tropical Cyclone - Isaias, 202008 - Heatwave - Western Europe, and 202008 - Convection - US.

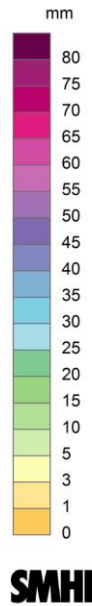
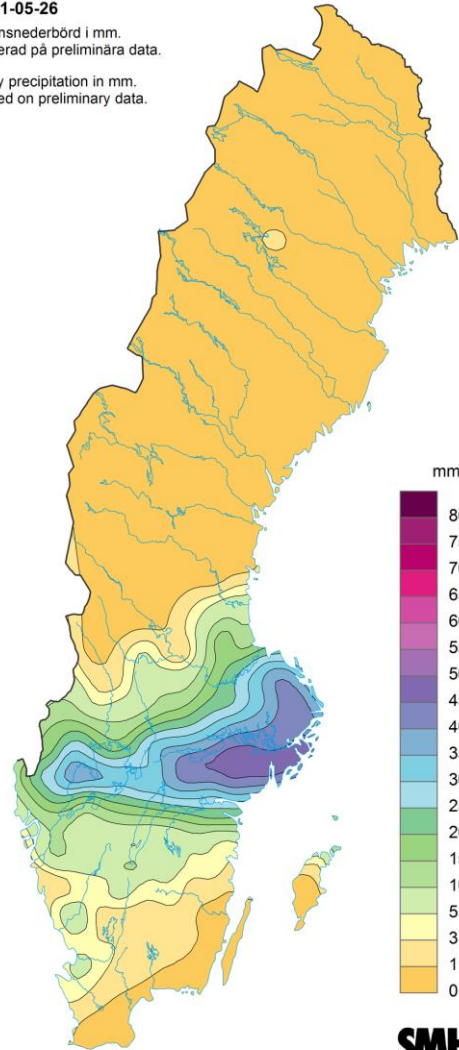
Purpose:

- Forecast evaluation
- Test new products
- Cases for model experimentation
- Share material with users
- Facilitate communication on severe events
- Bases for Newsletter articles

Example of recent event: Heavy rainfall in Sweden last week

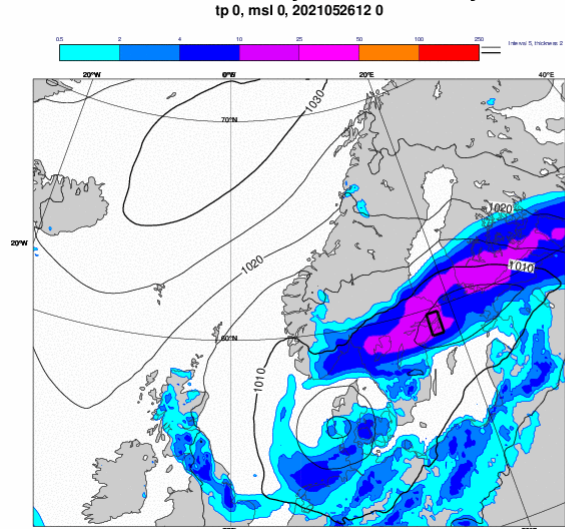
Gridded observations 26 May from SMHI

2021-05-26
 Dygnsnederbörd i mm.
 Baserad på preliminära data.
 Daily precipitation in mm.
 Based on preliminary data.

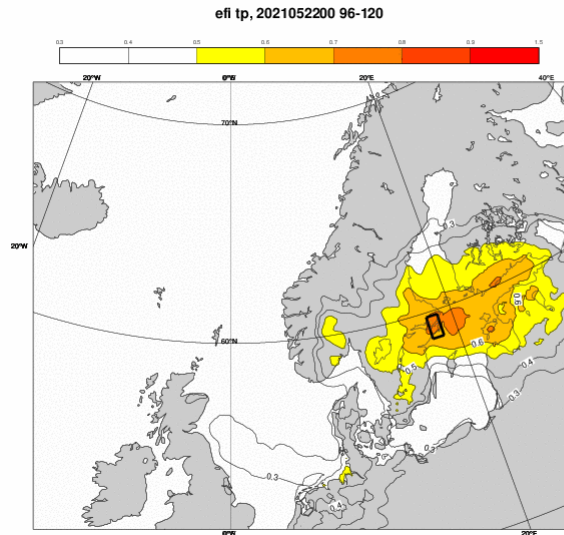


SMHI

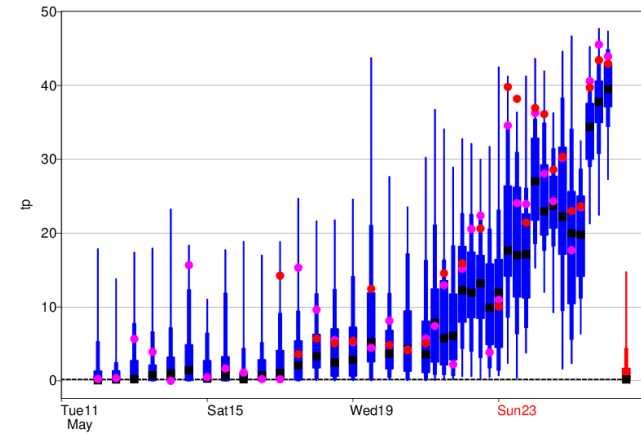
ECMWF analysis 26 May 12UTC



Extreme forecast Index 4-5 days before



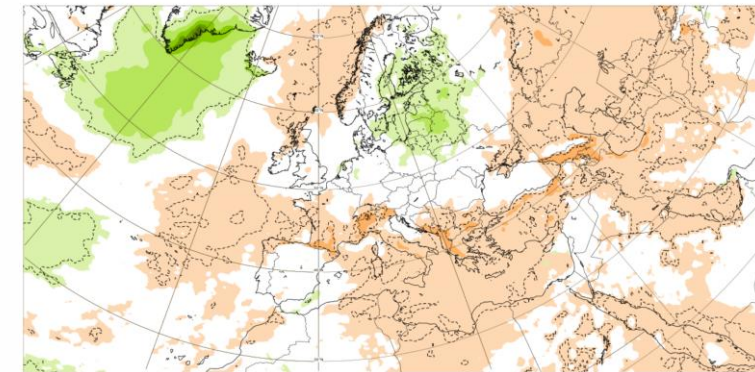
Forecast evolution for Stockholm 26 May



Weekly anomalies from 17 May

Precipitation: Weekly mean anomalies

Base time: Mon 17 May 2021, Valid time: Mon 24 May 2021 - Mon 31 May 2021, - T+336 h, Area : Europe



Extended range: Precipitation weekly mean anomaly, significance level: 10 % (mm)
 <-90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90

List of ECMWF Newsletter articles on severe events:

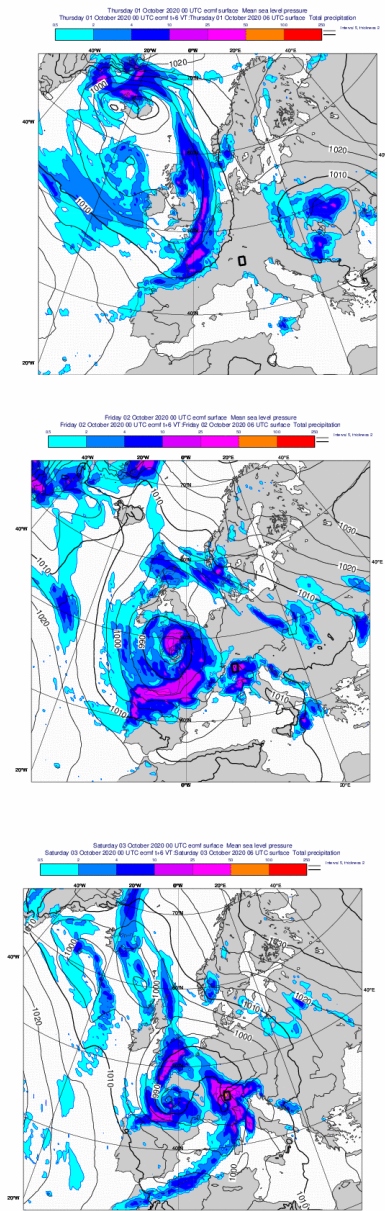
- 139 - Windstorms in northwest Europe in late 2013
- 140 - Forecasting the severe flooding in the Balkans
- 141 - Recent cases of severe convective storms in Europe
- 142 - Forecasts for a fatal blizzard in Nepal in October 2014
- 143 - Forecasts for US east coast snow storm in January 2015
- 144 - ECMWF forecasts for tropical cyclone Pam
- 145 - Predicting this year's European heat wave
- 146 - Forecasting flash floods in Italy
- 147 - Wind and wave forecasts during Storm Gertrude/Tor
- 148 - Forecasts showed Paris flood risk well in advance
- 149 - Predicting heavy rainfall in China
- 150 - Flash floods over Greece in early September 2016
- 151 - The cold spell in eastern Europe in January 2017
- 152 - ECMWF supports flood disaster response in Peru
- 153 – Predictions of tropical cyclones Harvey and Irma
- 154 – Two storm forecasts with very different skill
- 155 – Predicting extreme snow in the Alps in January 2018
- 156 – Forecasting convective rain events in late May
- 157 – Forecasting the 2018 European heatwave
- 158 – Predicting multiple weather hazards over Italy
- 159 - Forecasts of freezing rain in Romania
- 160 - ECMWF works with universities to support response to tropical cyclone Idai
- 161 - The 2019 western European heatwaves
- 162 - Challenges in forecasting Hurricane Lorenzo
- 163 - Forecasting February's wet and stormy weather in parts of Europe
- 164 - Warm intrusions into the Arctic in April 2020
- 165 – Hurricane Laura and its threat to the United States
- 166 - Windstorm Alex affected large parts of Europe
- 167 - Unusual snowfall in Madrid in January

Merged version of articles in 139-158:

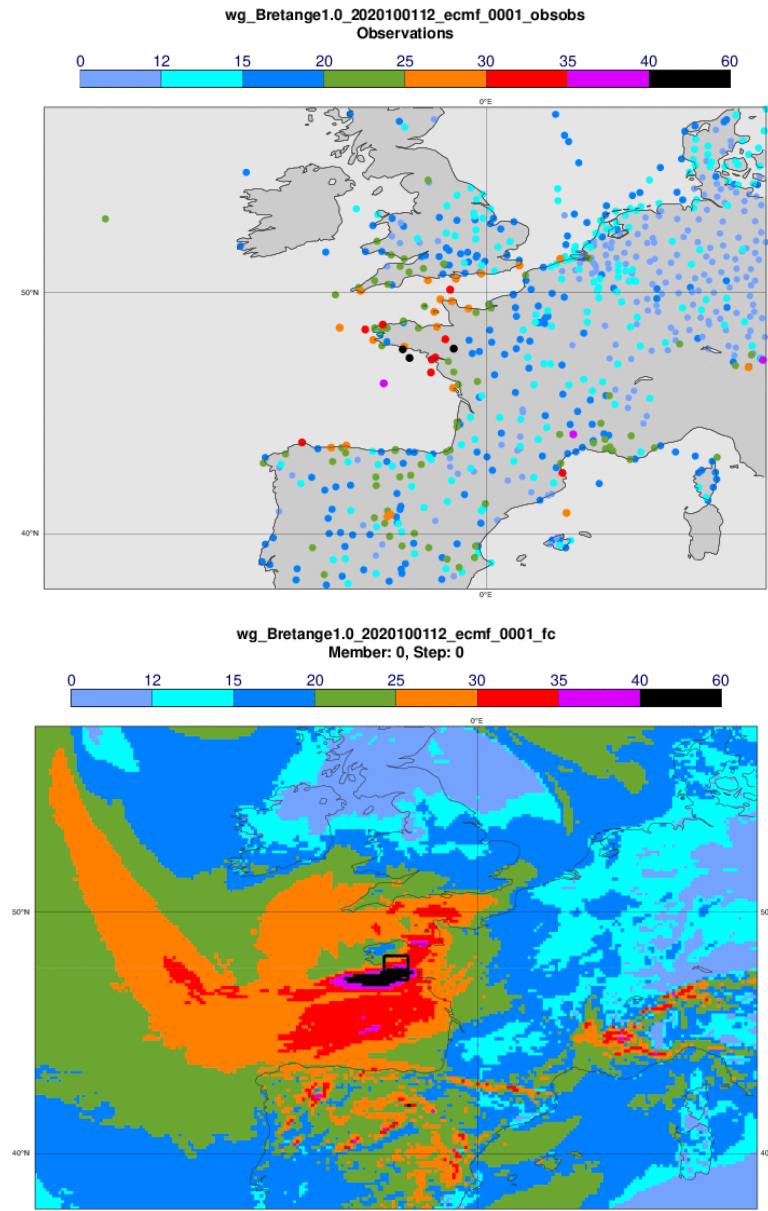
https://www.ecmwf.int/sites/default/files/medialibrary/2019-04/ecmwf_nl_severe.pdf

Example of diagnostics

Evolution of analysis/forecast



Observations and forecasts valid at the same time



Forecasts valid at the same time

