

# New Forecasting Structure at Deutscher Wetterdienst (DWD)

## Introduction

The warning process at DWD is currently managed and coordinated by the Central Forecasting Office in Offenbach. Warnings are issued and disseminated by 7 Regional Forecast Centres.

With DWD strategy plan 2015 the Central Forecasting Office and Regional Forecast Centres will be reorganized. This will lead to a better development of very short range and short range forecasting and supporting tools, as well as automation and a decentralised advisory service. In the end this will improve weather forecasting and warnings. Centralisation of the warning process will further help to reduce the number of established posts at DWD, which has already reduced from over 3000 employees in 1991 to about 2400 in 2008.

## Current Forecasting and Warning Structure

Weather warning at DWD is carried out in a temporal three-level warning system.

The multi-level structure of the warning system guarantees that the warning issued includes increasing detail the nearer a weather event approaches.

First level-warnings (3 to 7 days before the event) on a national scale are issued by the Central Forecasting Office. Second level-warnings (12 to 48 hours before the event) on a federal-state scale are issued by the Regional Forecasting Offices. Third level-warnings, i.e. the actual warnings for over 350 small districts, are issued by the Regional Forecasting Offices.

Figure 1: Three-level warning system

### The principle: Three-level warning system of DWD

#### Level 1 - Early Warning Level:

Based on the results of numerical weather models (incl. EPS) - for the coming 3 to 7 days

#### Level 2 - Prewarning Level:

Based on numerical forecasts and follow-up statistical procedures - for the coming 12 to 48 hours

#### Level 3 - Warning management system, small district related:

Based on local models, nowcasting techniques and observations - for up to 12 hours ahead.

Currently the warning process at the German Weather Service is regionally organized in 6 Regional Forecasting Offices and 1 (plus 1 regional annex) Central Forecasting Office in Offenbach. The regional offices are responsible for their affiliated federal states. The Central Forecasting Office manages guidance and coordination of the regional offices within the “Single Voice Policy” of DWD.

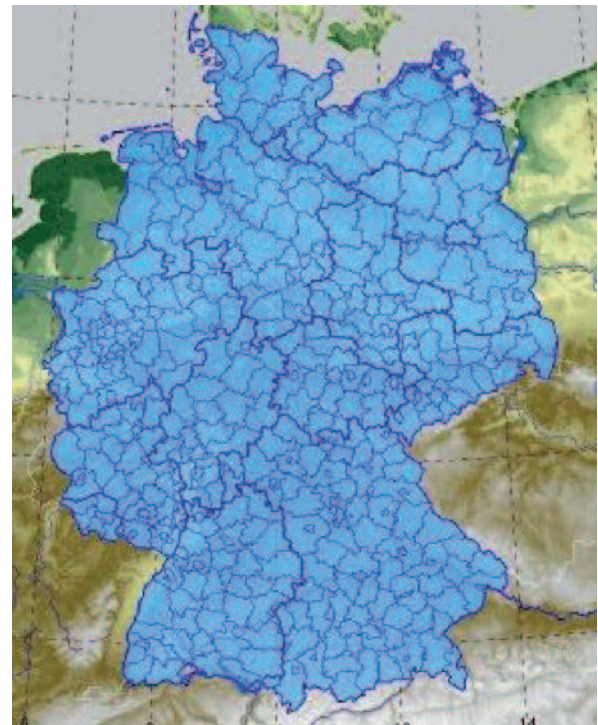
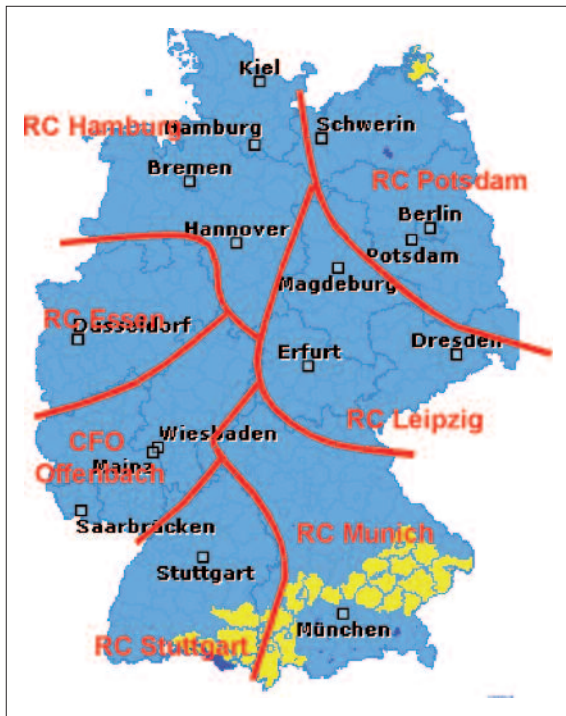


Figure 3: over 350 warning districts.

Figure 2: 7 regional areas.

## Future Forecasting and Warning Structure

With the DWD strategy plan 2015 the weather- and forecasting process will be further developed, reorganized and centralized. Most effort will be applied to the very short range and short range forecasts. Medium range forecast and beyond that time will be managed by using ECMWF products.

Because of the centralisation and reduction of established posts, supporting tools and a higher level of automation will be developed.

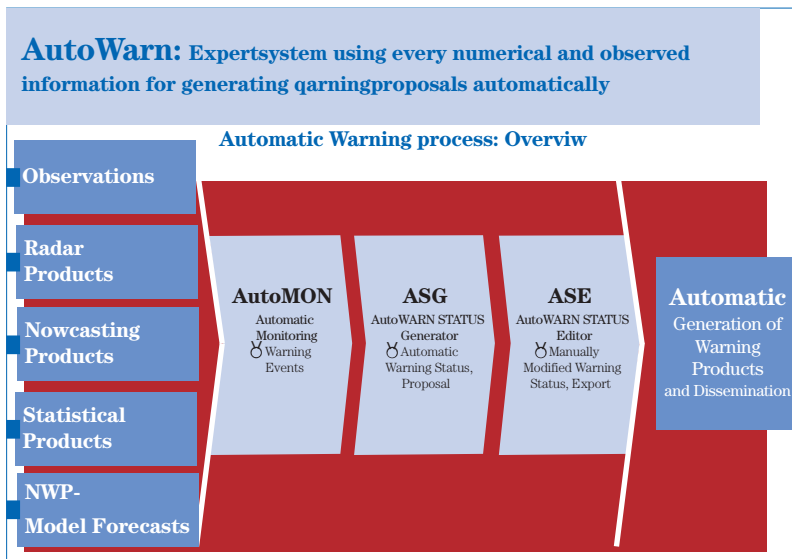
The key project for supporting the warning process will be “AutoWarn”.

“AutoWarn” is a computer-based Expert System which uses all the available data: observations, radar, nowcasting and statistical products as well as numerical products.

In addition it monitors the data and generates warning proposals, which can be released or modified by the forecaster. Finally dissemination of the warnings is done by “AutoWarn” automatically.

In future the whole warning process will be assisted by “AutoWarn” and will be shifted from the 6(1) regional offices to a newly established “National Warning Centre” (NWC) in Offenbach.

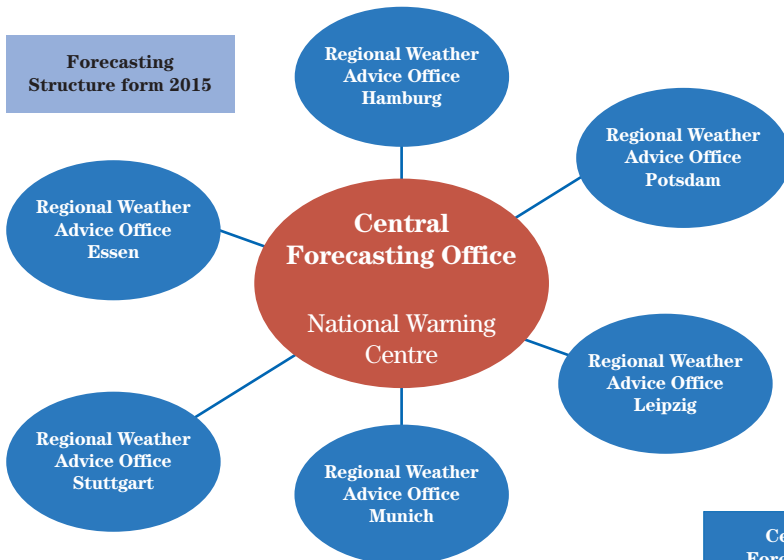
The whole national warning process will then be done by 2 forecasters around the clock.



◀ Figure 4: Expertsystem Auto Warn.



▲ Figure 6: 2 proposals for regional areas.

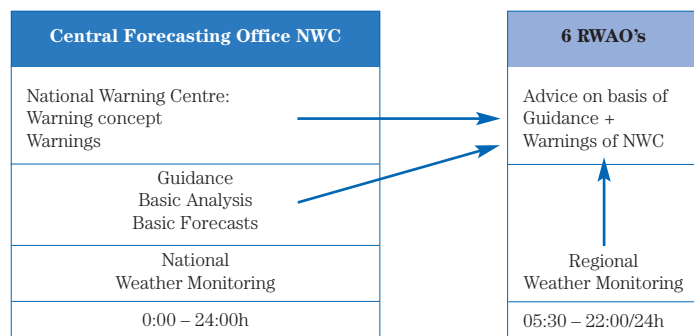
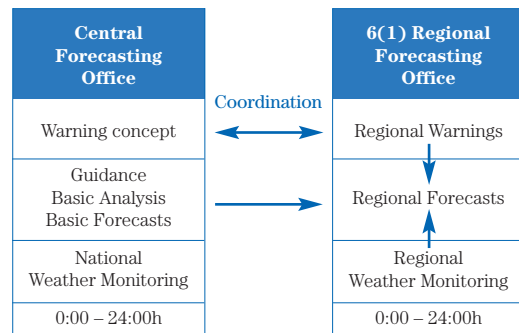


▲ Figure 5: Future forecasting structure.

The 6 Regional Forecast Offices will be transformed into 6 Regional Weather Advisory Offices.

While they currently still issue regional forecasts and warnings, under guidance and coordination of the Central Forecasting Office, this will only be done by the National Warning Centre in the coming structure. Regional Weather Advisory Offices will mainly monitor their regional weather and serve and advise their clients with regional weather information that is based on the forecast products and warnings of the central office.

▶ Figure 7: Current cooperation of central and regional offices.

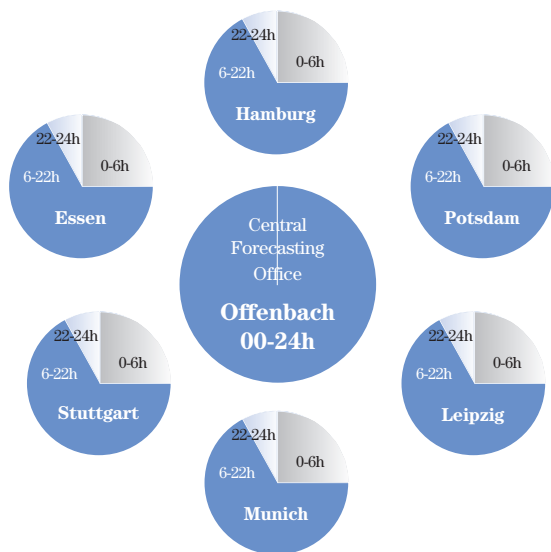


▲ Figure 8: Future guidance of regional offices.

At present regional and central offices are working 24 hours a day.

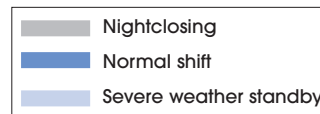
In future regional offices will work from 05.30 to 22.00 h. In case of severe weather warning in their region their working hours will be extended to 24.00 h.

### New shift structure



▲ Figure 9: Current working hours.

◀ Figure 10: Future working hours.



## Future Work Force in the Forecasting and Warning Process

With the new structure of the forecasting and warning process the number of established posts will be reduced. This is a follow-up reduction after integration of the Meteorological Service of the GDR into DWD after German unification. The number of employees jumped from about 2000 to over 3000 before dropping to nearly 2400 in the year 2008. This process will be continued by the new structure.

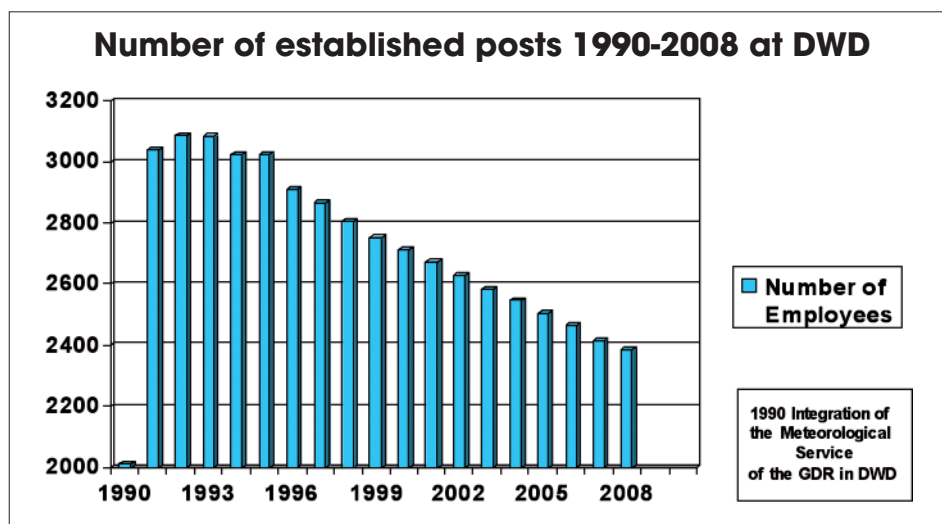


Figure 11: Development of the workforce.

By the end of 2015 the workforce in the forecast and warning process will be reduced from nearly 140 to about 80.

	<b>6 Regional Forecast Office</b>	<b>6 Regional Weather Advisory Offices</b>
<b>Class I Meteorologist (higher civil service)</b>	48	6
<b>Class II Meteorologist (higher intermediate civil service)</b>	6	30
<b>Class III Meteorologist (intermediate civil service)</b>	84	42
$\Sigma$	138	78

Figure 12: Current vs. future workforce at regional offices