Winter 2007-8 forecast

Ofgem winter outlook consultation

Dr Matt Huddleston Tuesday 2 October

Essential forecasts for everyone, every day

• The Met Office provides nearly 3,000 tailored forecasts to customers around the world every day

• Every day 10,000 pieces of observational data are processed

•The Met Office provides vital information that enables weather-sensitive businesses & public operations to stay one step ahead

• Incorporates Met Office Hadley Centre for Climate Change and The National Ocean Forecast Centre (**NCOF**)

Consulting on weather and climate

1) World class science provider
Attracting and retaining world class expertise, working with most advanced technology to deliver cutting edge weather and climate science to the market place.

2) Demonstrated commercial applicability
Global leader in probabilistic interpretation of data. Combination of a truly unique understanding of the applicability of our science with the best science on the market.

3) Thought leadership and advice
Harnessing the power of innovation in science with an experienced team of consultants to deliver business advantage.

'It is beyond dispute that the Met Office Hadley Centre occupies a position at the pinnacle of world climate science and in translating that science into policy advice.'

Independent Hadley Centre Review 2007

Contents

- Forecast for Autumn and winter 2007/08
- Forecast insight
- Weather and climate intelligence for business

Autumn 2007 – public forecast

- **Forecast for the remainder of Autumn 2007 (Oct-Nov)**

Our forecasting methods continue to favour **more frequent high pressure systems** in the vicinity of the British Isles than is usually the case in autumn. The outlook for the UK for the remainder of Autumn 2007 is therefore similar to that stated last month.

Autumn 2007 – public forecast

• **Most likely to be warmer than the 1971-2000 average, though colder than last year**

• **Average or below-average rainfall** is more likely than above-average rainfall

• **Less frequent periods of very windy weather**, compared to normal

•Greater risk of fog, compared to normal, during the latter part of autumn

The autumn forecast will next be updated at 10 a.m. on 23 October 2007.

Winter public forecast 2007-08

Temperature forecast

Above-normal winter temperatures are more likely than below-normal temperatures over much of the European region.

Likely to be less mild in most regions than last winter, when exceptionally mild conditions were widespread across Europe.

The influence of **La Niña** is to slightly enhance the likelihood of near-normal temperatures in early winter and **mild conditions during late winter**.

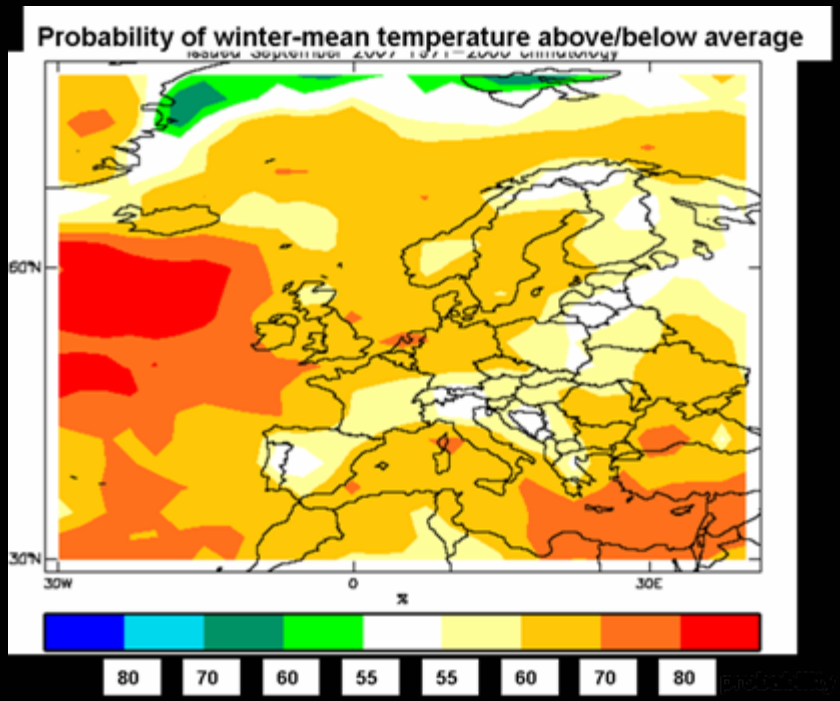
For the UK as a whole, winter-mean temperatures are more likely to be above normal than near normal or below normal. Although a winter milder than the 1971-2000 average is favoured, **temperatures are likely to be noticeably colder** than those experienced in the very warm winter **last year**.

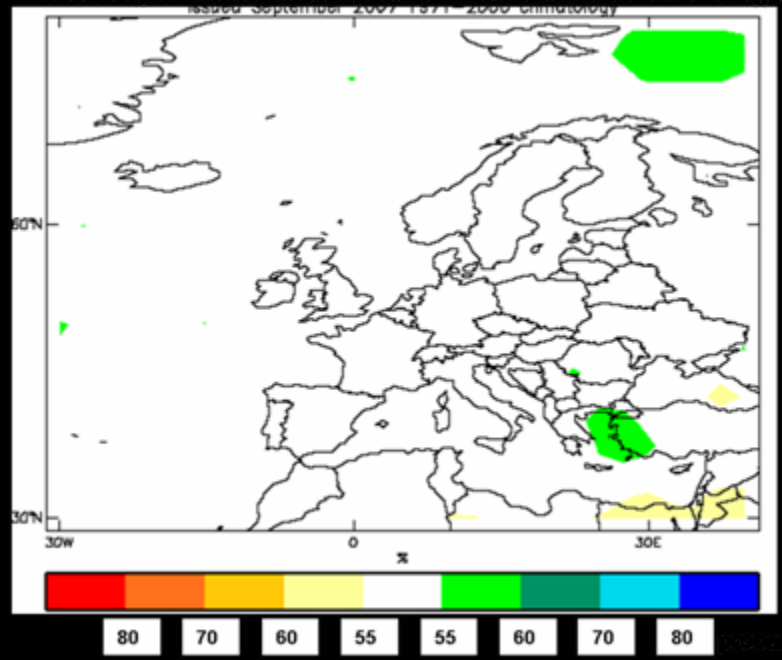
Winter public forecast 2006-07

Rainfall forecast

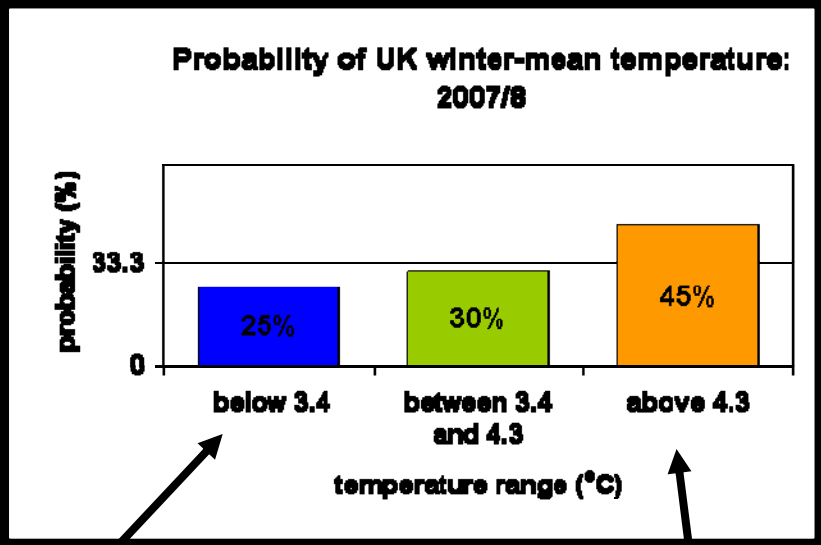
• At this time our forecast methods **favour a drier winter than last year over the UK as a whole.** However, this signal is not sufficient to indicate whether winter precipitation totals are more likely to be above or below the 1971-2000 average.

Winter public forecast 2007-08



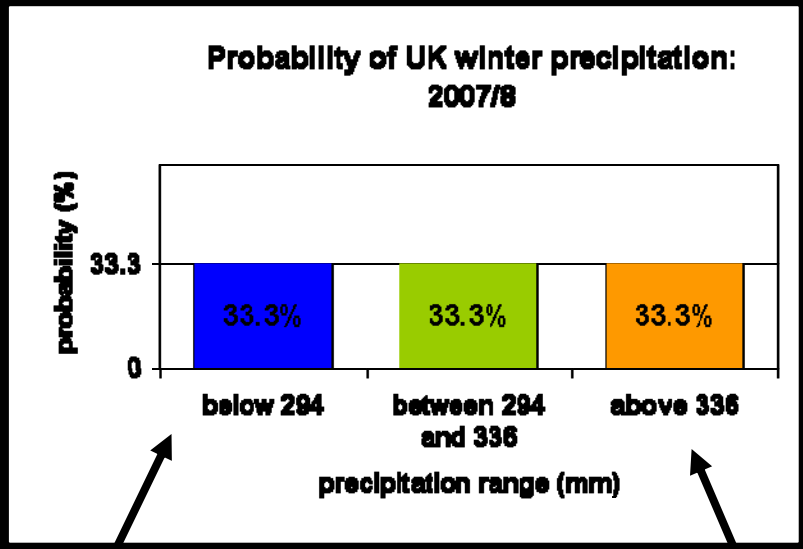


Winter public forecast 2007-08



2005/06
3.9ºC

2006/07
5.6ºC



2005/06
206mm

2006/07
437mm

Met Office

Forecast insight

Met Office winter forecast 2005/6

The forecast

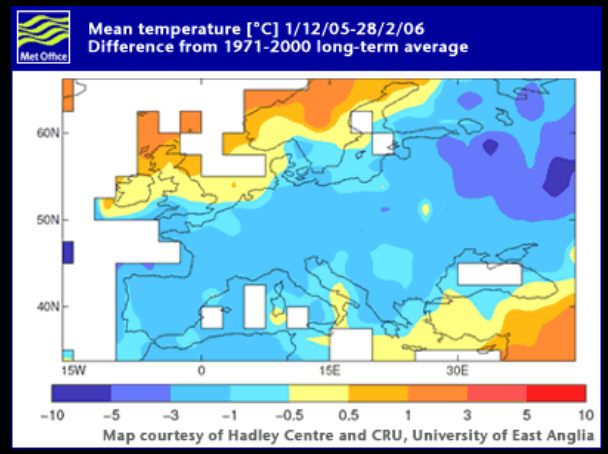
A two in three chance of a colder-than-average winter for much of Europe. If this holds true, parts of the UK – especially southern regions – are expected to have temperatures below normal

There is also an indication for a drier-than-average winter over much of the UK.

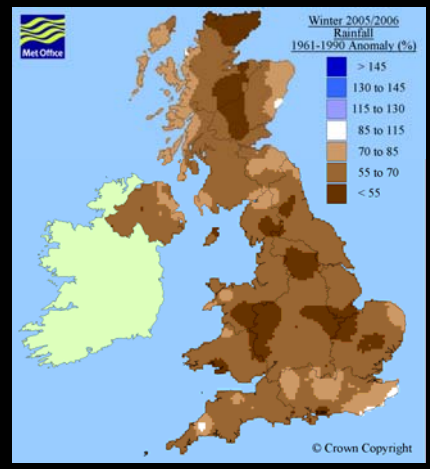
Customers:

- public
- government (Cabinet office, EA)
- planners in utilities, transport, finance & insurance, defence, aviation, local authorities
- 71% of public aware, 13% took action

Observed Europe temperature anomalies



Observed UK rainfall anomalies



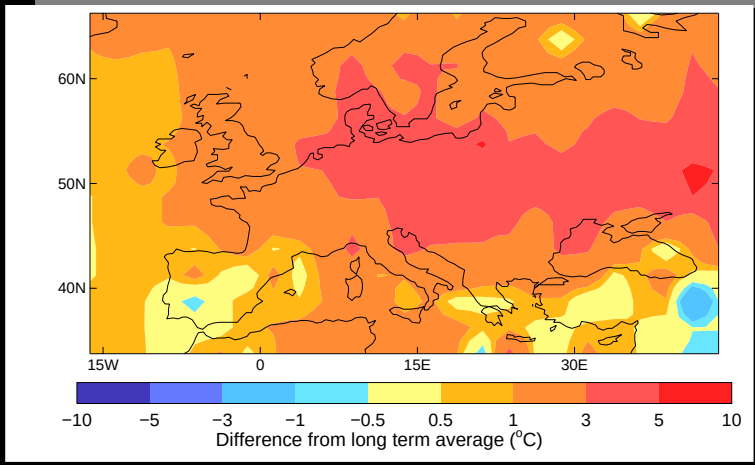
Met Office winter forecast 2006/7

The forecast

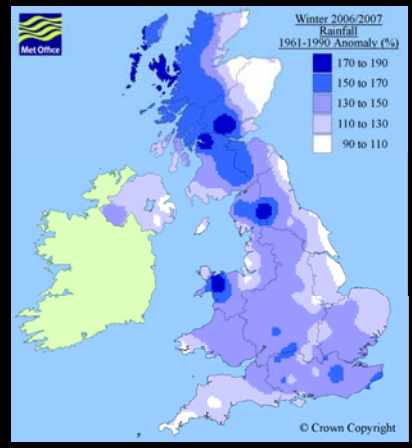
Near-average or warmer-than-average temperatures are the more likely outcomes for the winter period as a whole for UK and much of Europe. There is potential for lower temperatures (relative to average) in mid to late winter.

Best estimates slightly favour average or above-average precipitation for the UK

Observed Europe temperature anomalies, relative to 1971-2000



Observed UK rainfall anomalies



Met Office summer forecast 2007

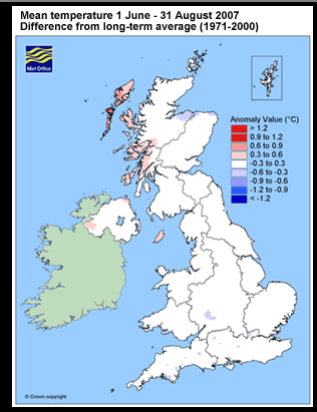
The outcome, JJA 2007

The forecast

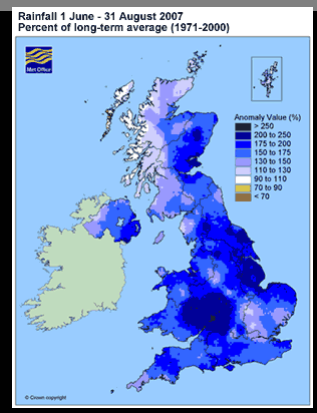
There is a high probability that mean summer temperatures will be above the 1971-2000 long-term average over much of Europe including the UK. However, for the UK it is likely that exceptionally hot spells will be fewer than experienced in the summers of 2003 or 2006.

Southern UK is more likely to experience average or below-average rainfall, while average or above-average rainfall is more likely in northern regions

Observed UK mean temperature anomalies

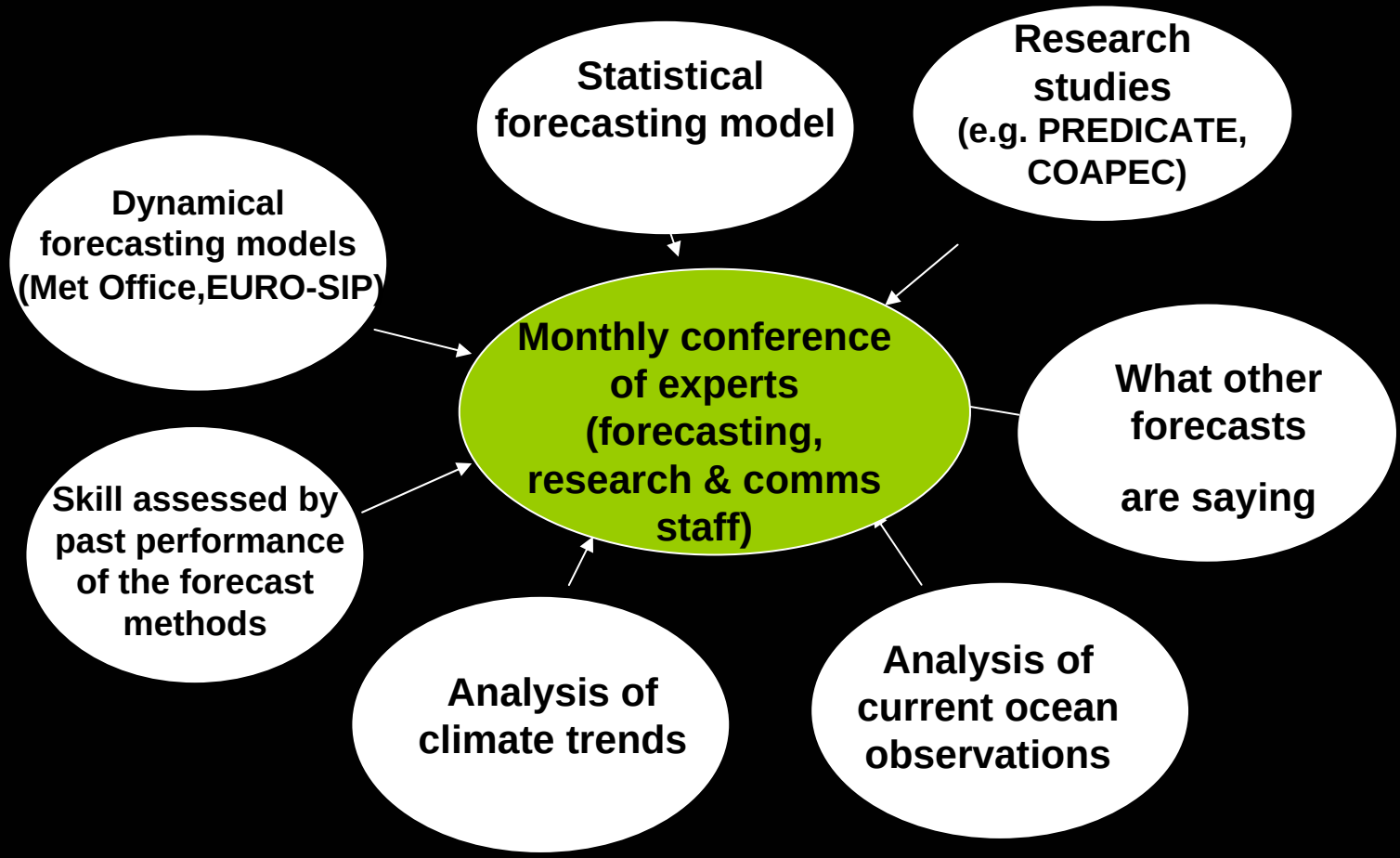


Observed UK rainfall anomalies

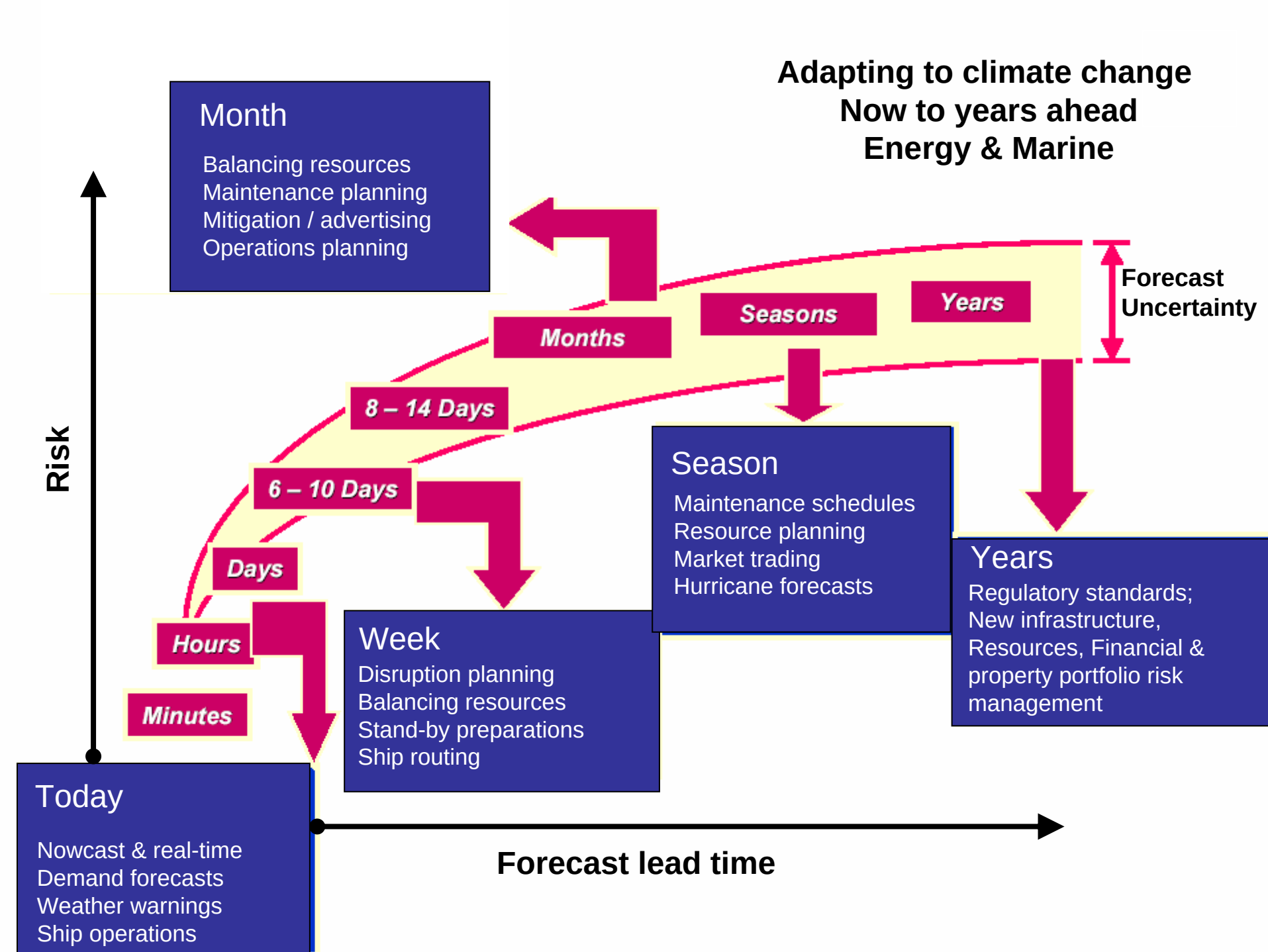


The forecast process

'This forecast is produced using a combination of statistical models and complex climate models with interpretation by operational forecasters.'

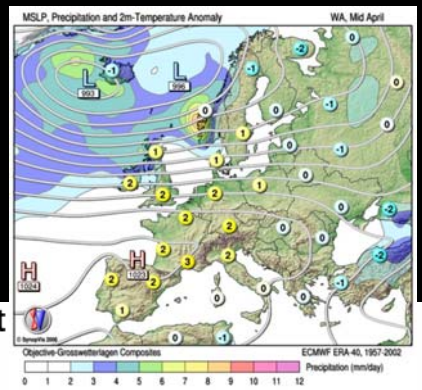


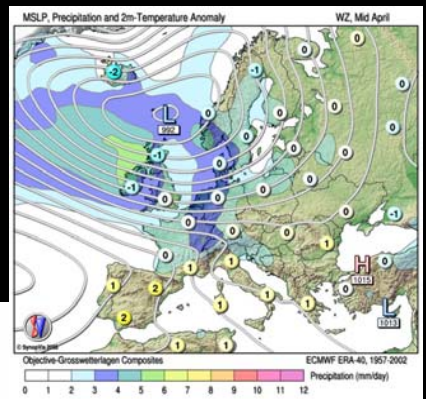
Weather & climate intelligence for business


Adapting to climate change
Now to years ahead
Energy & Marine
Month
Balancing resources
Maintenance planning
Mitigation / advertising
Operations planning
Months
Seasons
Years
Forecast Uncertainty
8 – 14 Days
6 – 10 Days
Days
Hours
Minutes
Risk
Season
Maintenance schedules
Resource planning
Market trading
Hurricane forecasts
Years
Regulatory standards;
New infrastructure,
Resources, Financial &
property portfolio risk
management
Week
Disruption planning
Balancing resources
Stand-by preparations
Ship routing
Today
Nowcast & real-time
Demand forecasts
Weather warnings
Ship operations
Forecast lead time

Weather regime analysis

A probabilistic diagnostic relevant to all timescales is weather regime analysis





FORMOST ECMWF 51-Member Ensemble Forecast

Objective-Grosswetterlagen

GWL Frequencies in Percent

	17 Apr-23 Apr	24 Apr-30 Apr	1 May-12 May	1990s Climate	Model Climate	Obs. Climate	
WA	28.6	17.9	4.5	2.7	2.4	2.1	*Anticyclonic Westerly*
WZ	36.7	8.1	3.3	2.7	2.1	5.5	*Cyclonic Westerly*
WS	1.1	2.0	3.9	0.9	4.6	2.3	*South-Shifted Cyclonic Westerly*
WW	5.9	4.5	2.1	5.6	2.6	5.9	*Maritime Westerly (Block E.Europe)*
SWA	3.6	6.7	1.2	0.9	2.6	2.5	*Anticyclonic South-Westerly*
SWZ	3.1	6.2	4.8	3.3	2.4	5.0	*Cyclonic South-Westerly*
NWA	2.2	5.6	1.5	3.3	1.4	2.7	*Anticyclonic North-Westerly*
NWZ	6.4	6.2	6.3	3.8	4.0	4.6	*Cyclonic North-Westerly*
HM	1.1	8.4	1.1	2.9	2.0	3.5	*High over Central Europe*
BM	2.2	7.8	7.4	5.3	3.1	4.3	*Zonal Ridge across Central Europe*
TM	0.0	0.8	6.3	7.1	5.5	4.2	*Low over Central Europe*
NA	0.6	3.1	3.3	0.7	2.7	2.2	*Anticyclonic Northerly*

Most Probable Grosswetterlage

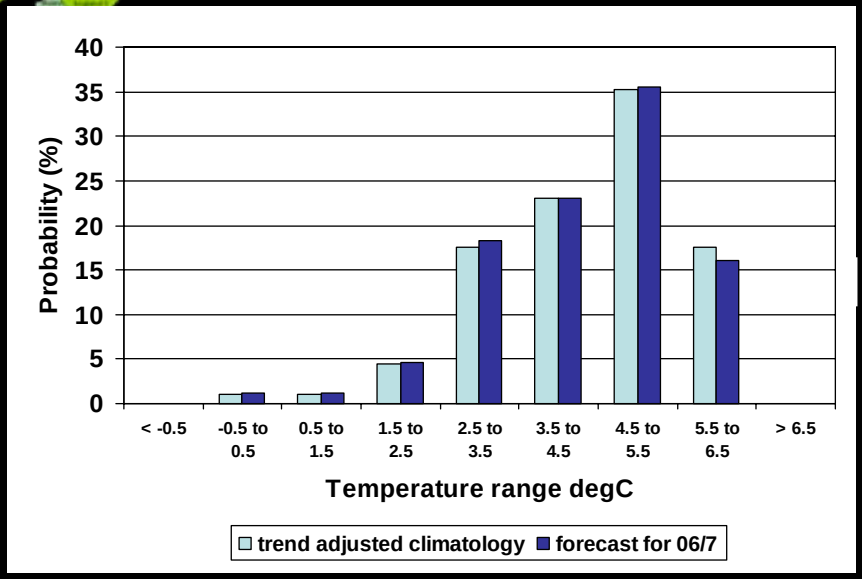
16 Apr 2006	WZ
17 Apr 2006	WZ
18 Apr 2006	WZ
19 Apr 2006	WZ
20 Apr 2006	WZ
21 Apr 2006	WZ
22 Apr 2006	WA
23 Apr 2006	WA
24 Apr 2006	WA
25 Apr 2006	WA
26 Apr 2006	WA

More detailed outlooks for decision making

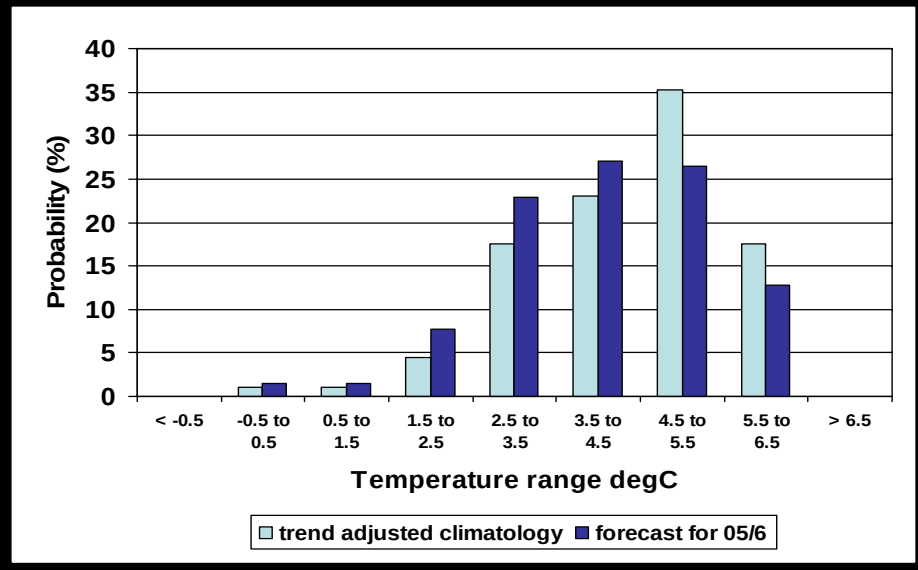
Ex: winter temperature probabilities southern England

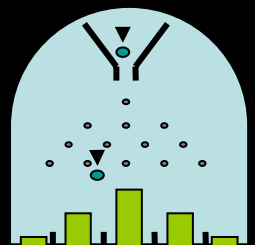
winter forecast 2006/7

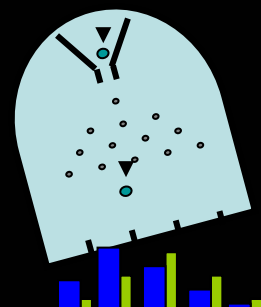
light blue: climatological frequency
dark blue: forecast probability



winter forecast 2005/6





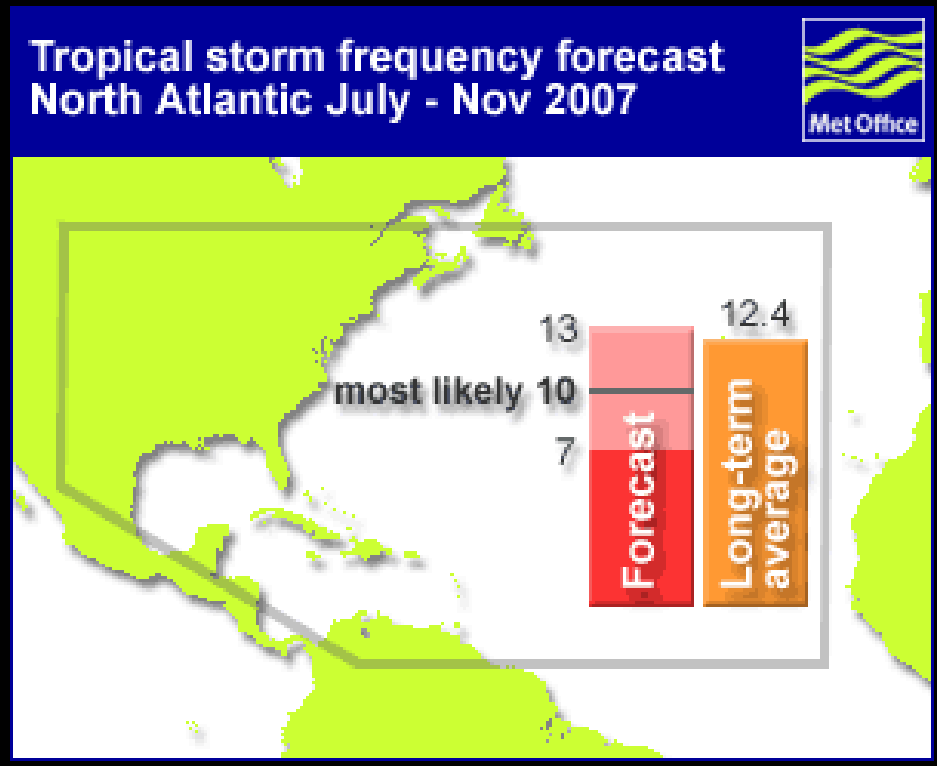


Met Office forecast: 10 tropical storms Jul-Nov

10 tropical storms are predicted as the most likely number to occur in the North Atlantic during the July to November period in 2007

70% chance that the number will be in the range 7 to 13.

This represents below normal activity relative to the 1990-2005 long-term average of 12.4.



A detailed report on our forecasts for 2007 including probabilities for all storm numbers is available

Global warming forecast predicts rise in 2014

By Roger Highfield, Science Editor
Last Updated: 7:01pm BST 09/08/2007

Have your say | Read comments

Here is the climate forecast for the next decade; although global warming will be held in check for a few years, it will come roaring back to send the mercury rising before 2014.

This is the prediction of the first computer model of the global climate designed to make forecasts over a timescale of around a decade, developed by scientists at the Met Office.

Overall warming trend is driven by greenhouse gas emissions

The new model developed at the Met's Hadley Centre in Exeter, and described in the journal Science, predicts that warming will slow during the next few years but then speed up again, and that at least half of the years after 2009 will be warmer than 1998, the warmest year on record.

Over the 10-year period as a whole,

Understanding impacts: What's normal?

Predicting the expected normal climate for each year 2007-2011 hour by hour

(Major UK Energy company, 2007)

With ever warmer seasons in the UK – historical records and return periods become are misguiding.

This energy company knew they needed a better estimate of what to expect for the coming years to make operational and strategic business critical decisions.

Very likely you have experienced climate change already – IPCC 2007

Winter forecast 2007-08

Updates and reviews of the forecast

A detailed report on the signals for winter will be available

Updates to the forecast will be issued at 10am on:

- 23 October 2007
- 22 November 2007
- 20 December 2007
- 23 January 2008.

Winter, in this context, is defined as the months of Dec, Jan and Feb, although it is recognised that winter weather can extend beyond this period, especially in northern Britain.

Innovation in a changing climate

Any questions?

More information

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Thank you