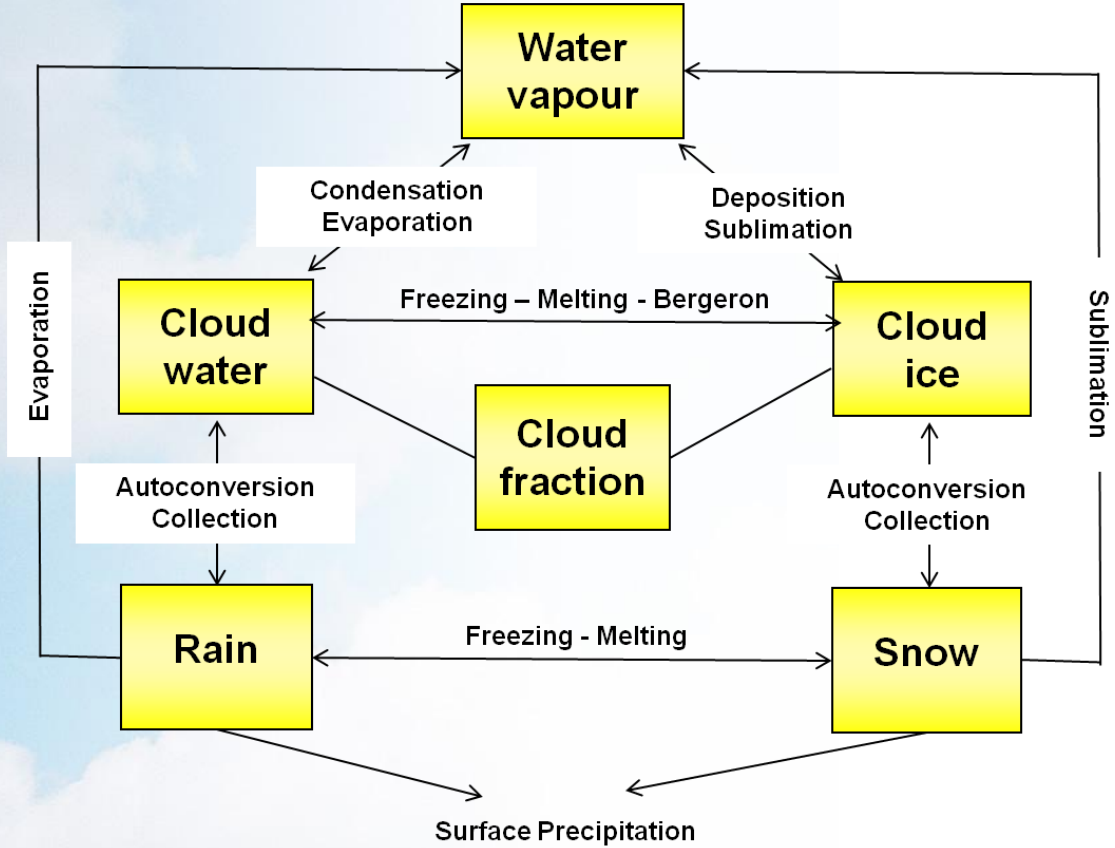# IFS Cloud Scheme

Melting layer often ~500m thick
In drier air, snow melts at T>0

Increasing
Elevation

Cold
Layer

Warm
Layer

Melting layer

Surface

25°F   32°F
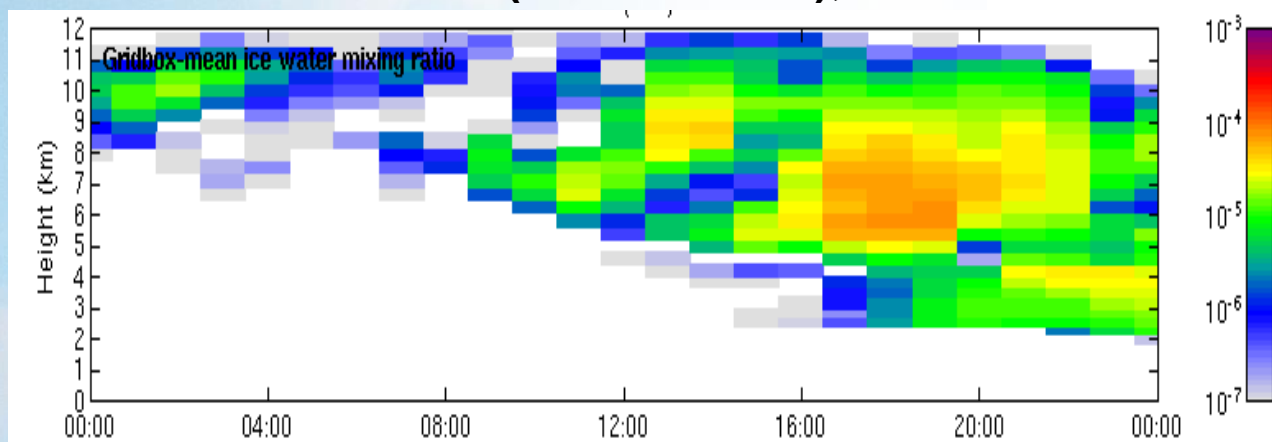
– – Temperature of
the atmosphere
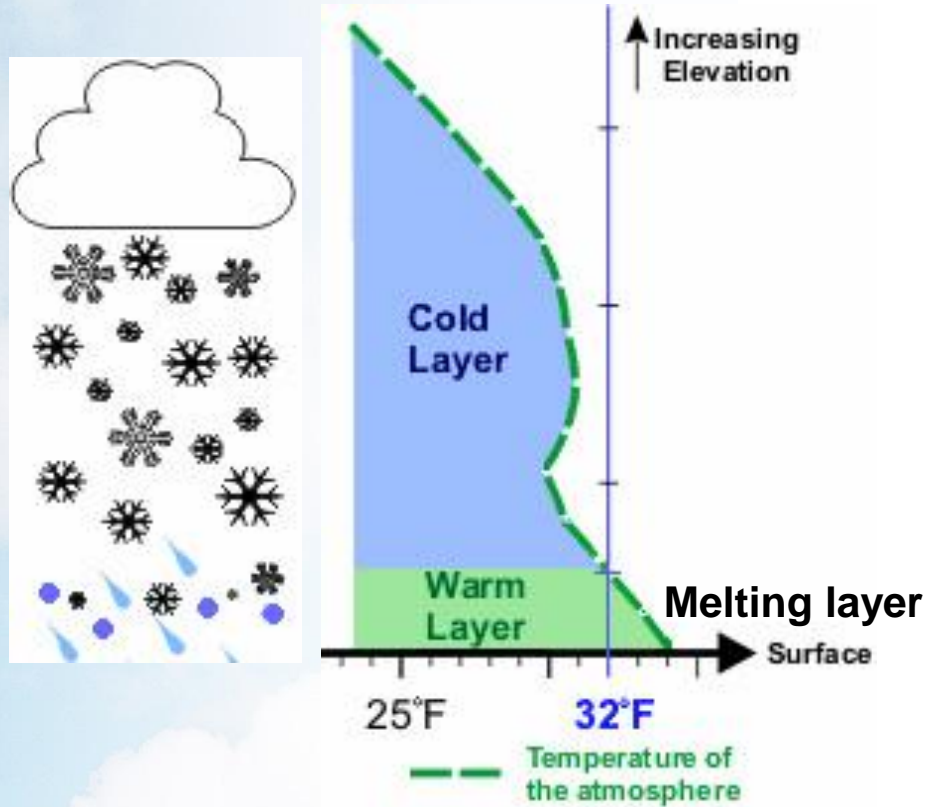
Sleet in melting layer:
In reality = melting particles
In the model = rain + snow mix

ECMWF

Melting layer high (~2km)

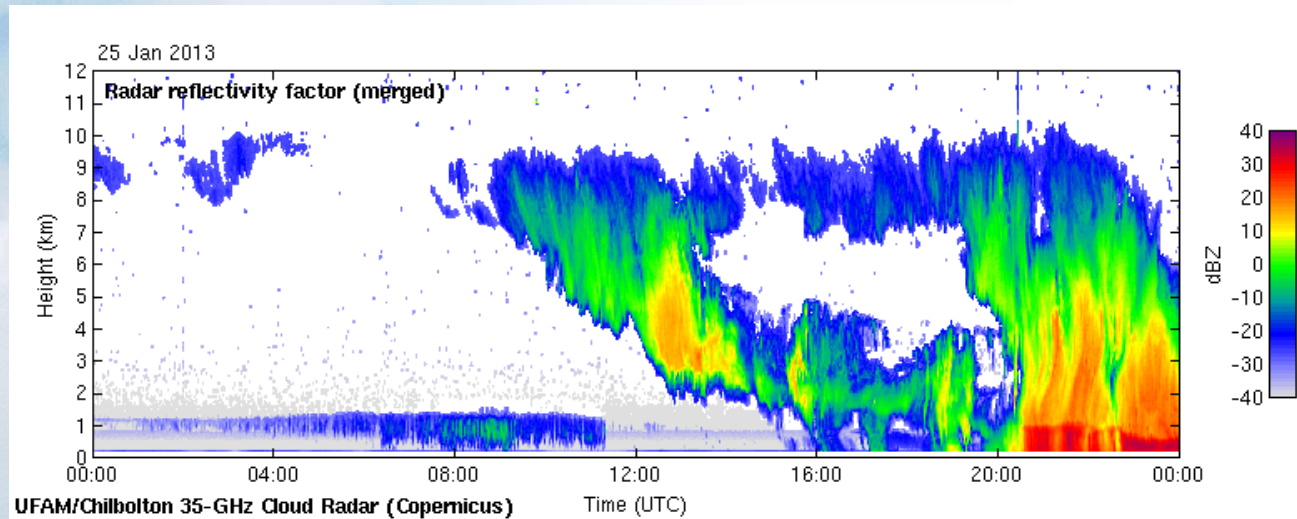**Cloud radar (Chilbolton, UK) radar reflectivity, 6 Jan 2013**
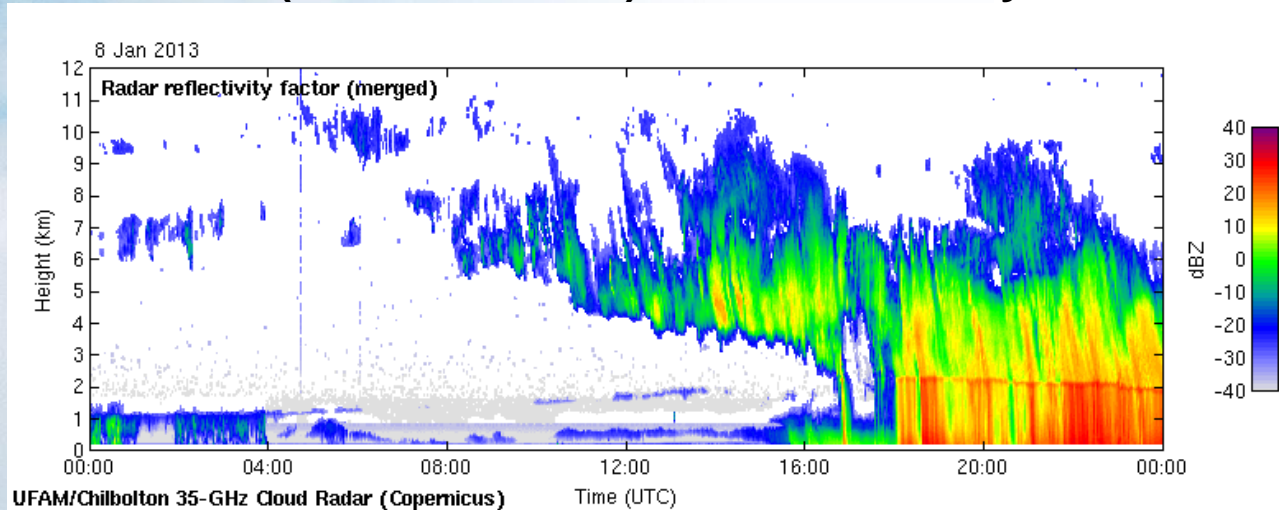
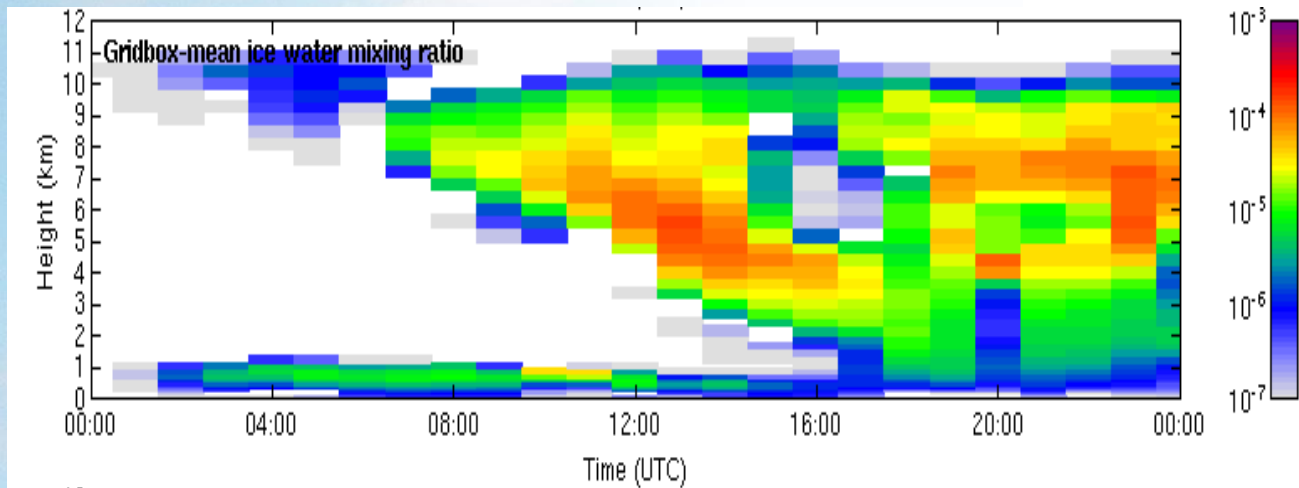
IFS ice cloud content (at Chilbolton), 6 Jan 2013

Melting layer close to ground

**Cloud radar (Chilbolton, UK) radar reflectivity, 25 Jan 2013**

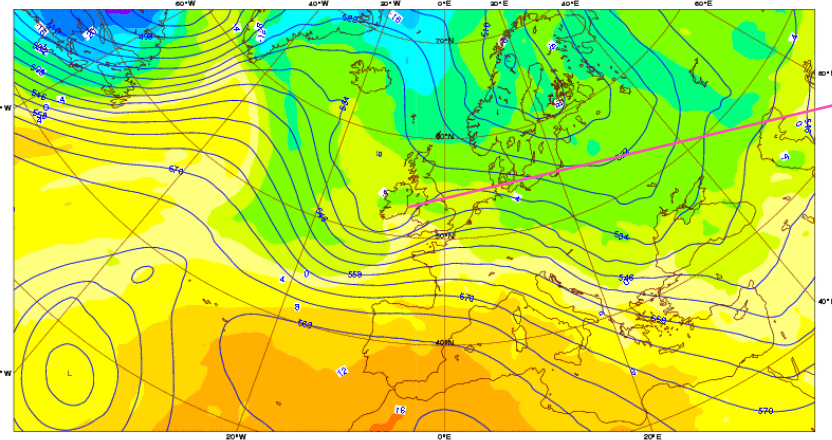**IFS ice cloud content (at Chilbolton), 25 Jan 2013**

False Alarm of snowfall
# Ireland 1St Feb 2013

Tuesday 29 January 2013 12UTC ©ECMWF Forecast t+072 VT: Friday 1 February 2013 12UTC
Surface: Mean sea level pressure / 12hr Accumulated precipitation (VT-6h/VT+6h)

Friday 1 February 2013 12UTC ©ECMWF Analysis t+000 VT: Friday 1 February 2013 12UTC
Surface: Mean sea level pressure
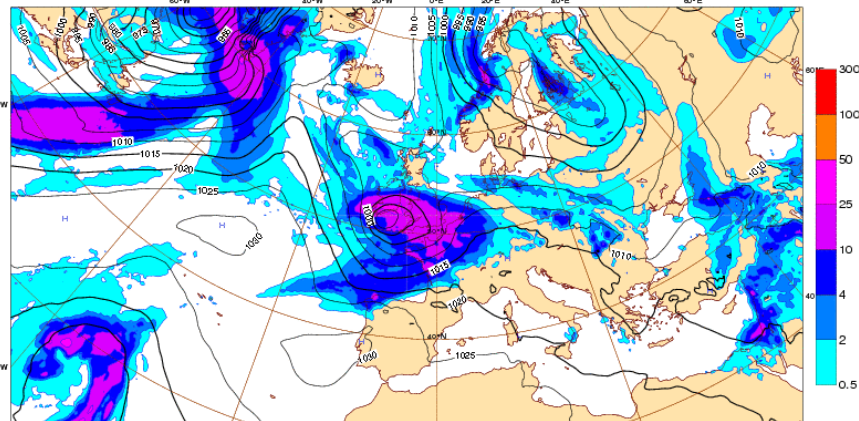
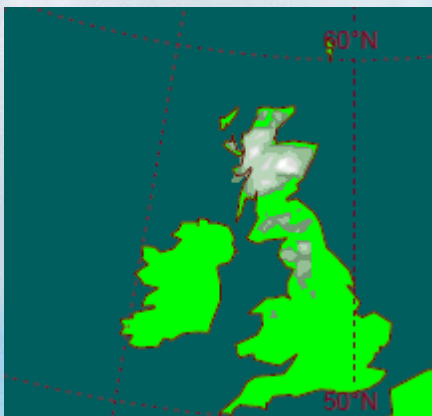Tuesday 29 January 2013 12UTC ©ECMWF Forecast t+072 VT: Friday 1 February 2013 12UTC
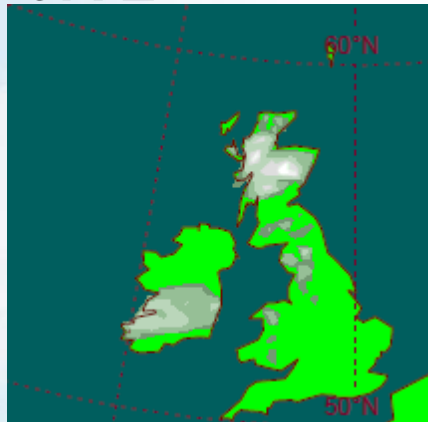850 hPa Temperature / 500 hPa Geopotential
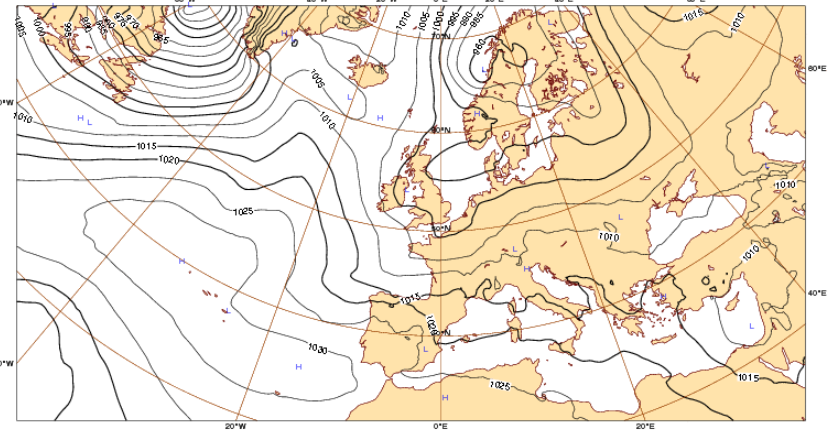
-4 <T (C) < 0 C
850 hPa
0 <T (C) <4 C
2 meter

Cont …
snow depth forecast basetime 29@12

t+60

t+72

t+84
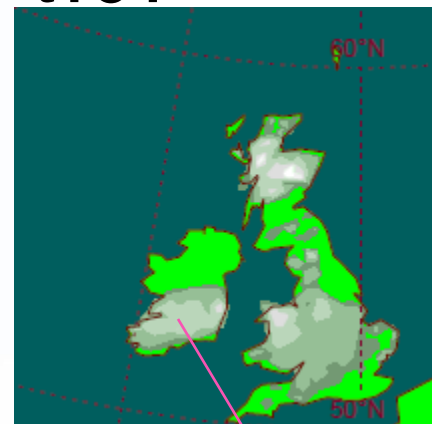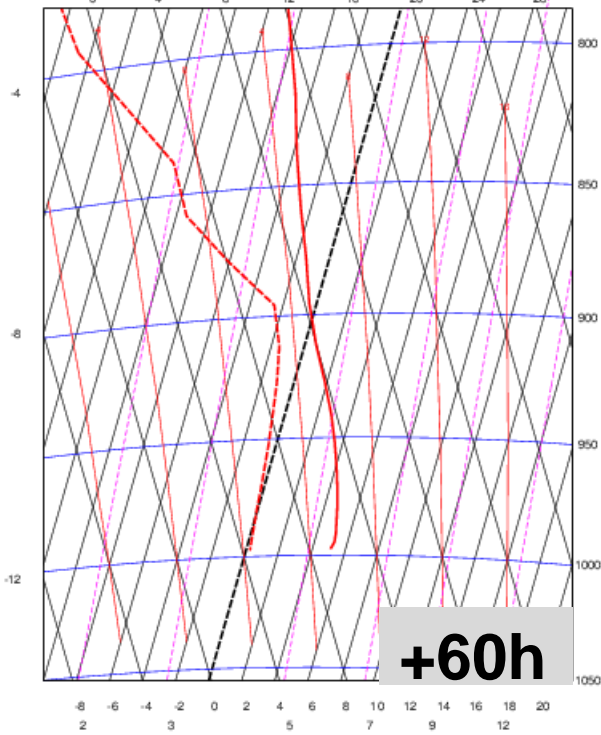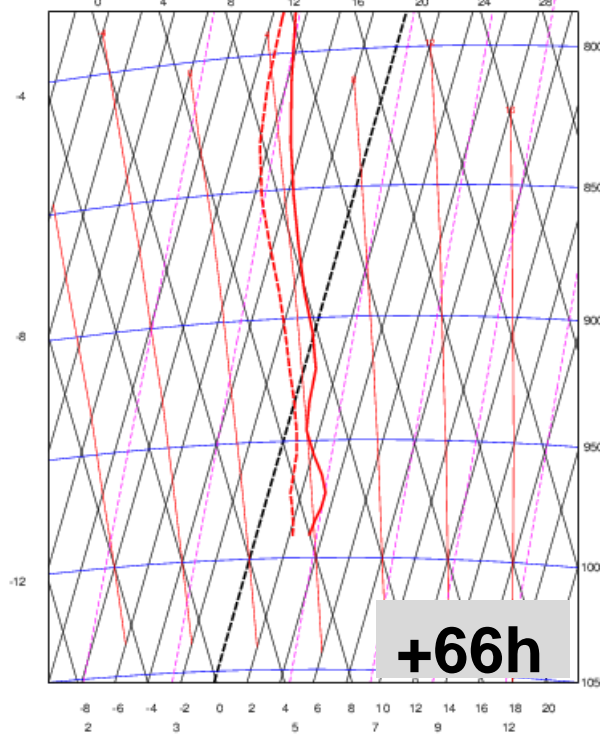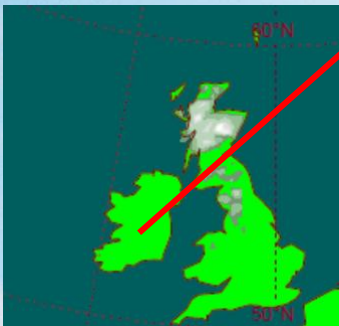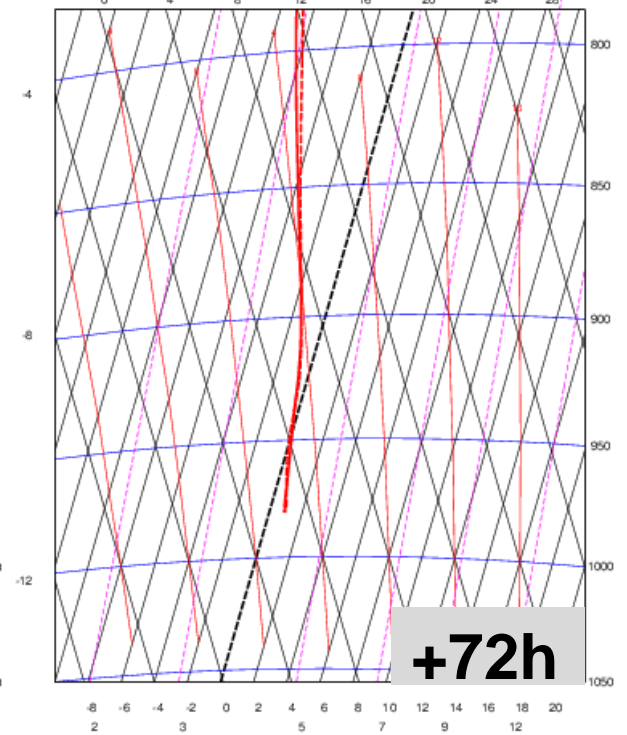
5-10 cms

T1279 29@12

20130129 1200 step 60 [53.00,-7.50] saturation over water, expver 0001

+60h

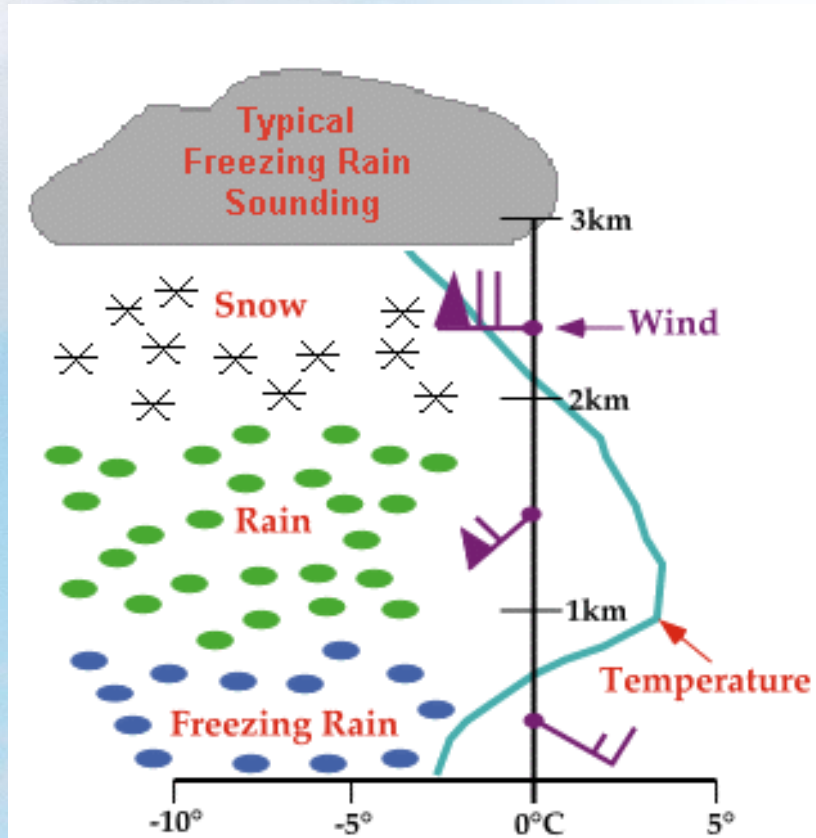20130129 1200 step 66 [53.00,-7.50] saturation over water, expver 0001

+66h

20130129 1200 step 72 [53.00,-7.50] saturation over water, expver 0001
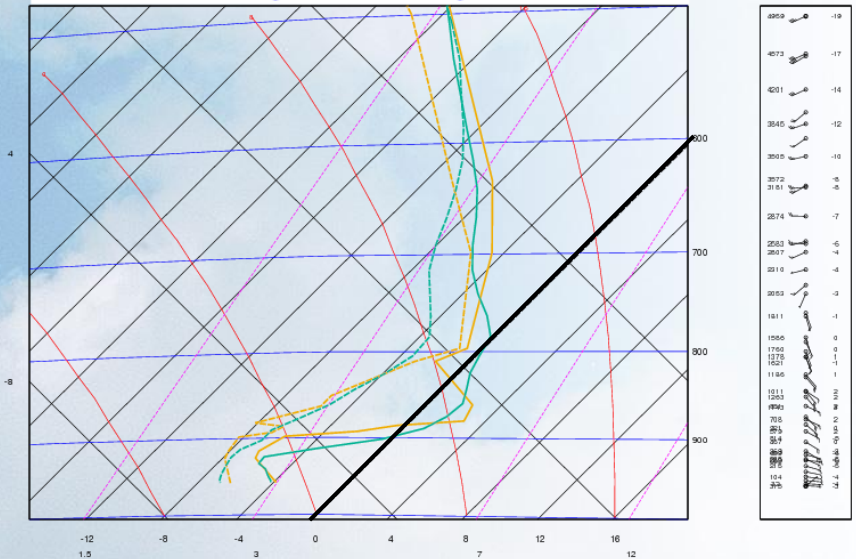
+72h

ECMWF

Freezing Rain

"On 20 and 21 January heavy snowfalls, combined with an interval of several hours of freezing rain across broad swathes of south-west and western Germany" - DWD

Station 10739 (48.83 9.20) 130119 2300
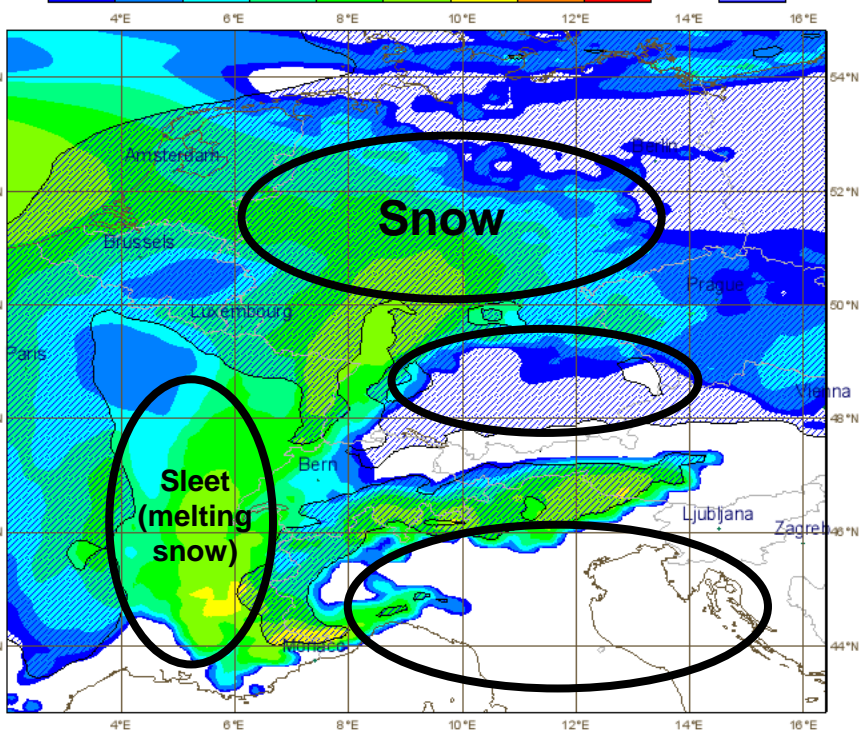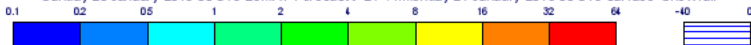ECMWF Forecast Stuttgart-Schnarrenberg 20130120 0UTC t+0

Station 10739 (48.83 9.20) 130120 1100
ECMWF Forecast Stuttgart-Schnarrenberg 20130120 0UTC t+12

Typical
Freezing Rain
Sounding
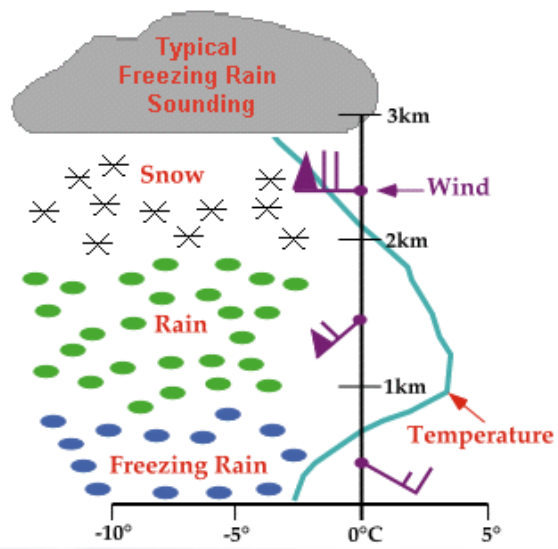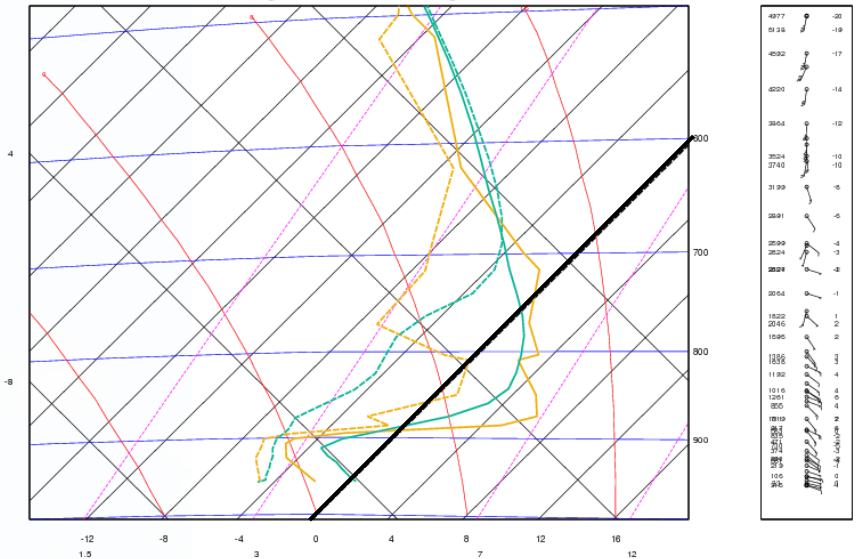
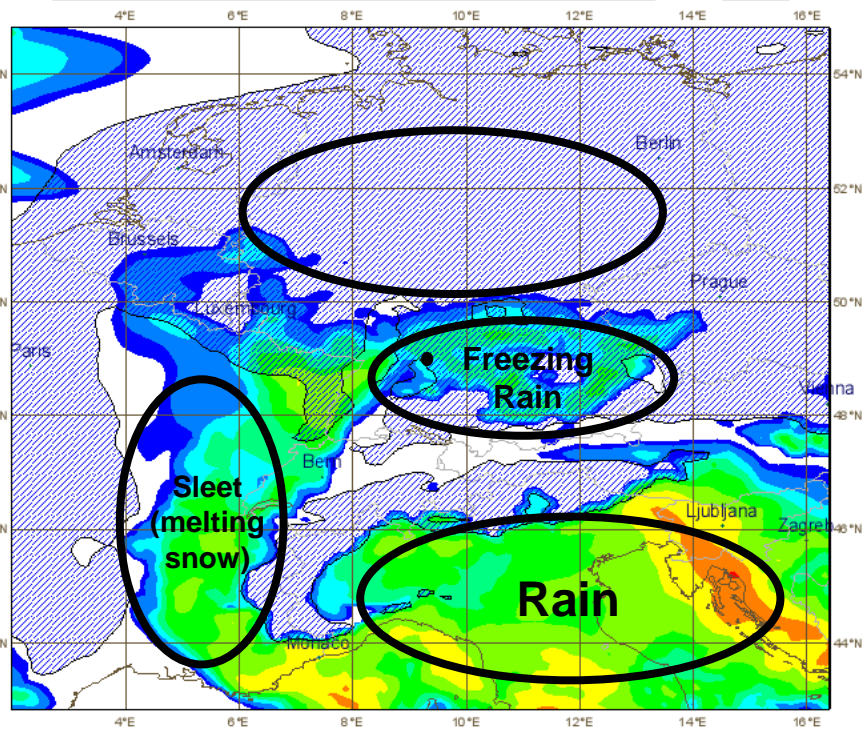# IFS 12-18hr forecast, 20 January 2013

Snowfall (colour) and T<0 (hatched)
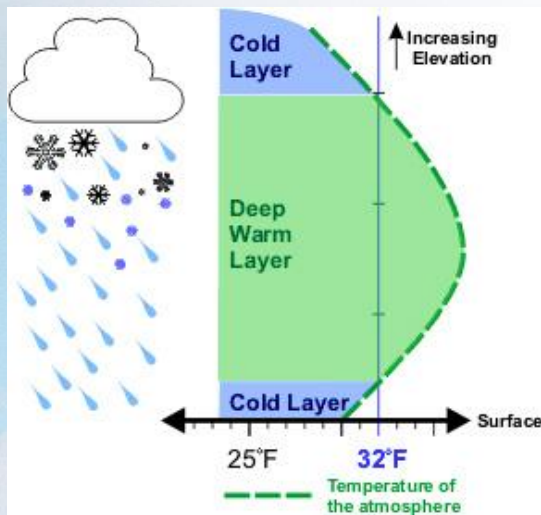
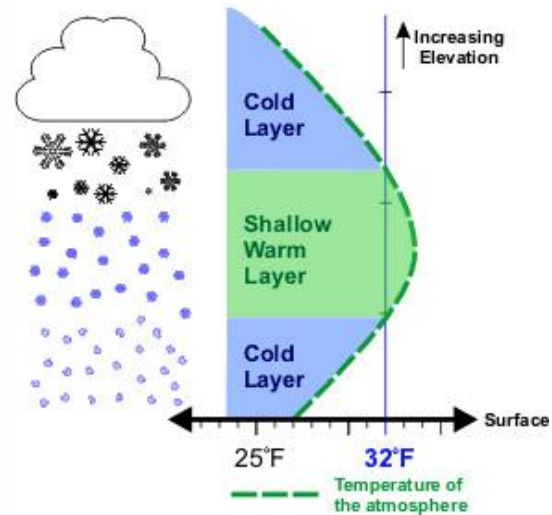**Rainfall (colour) and T<0 (hatched)**
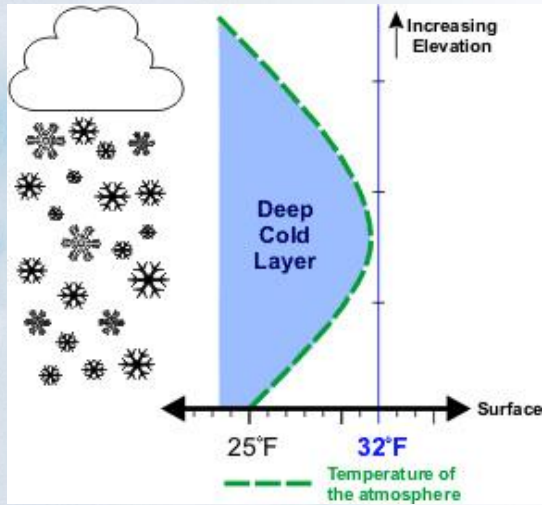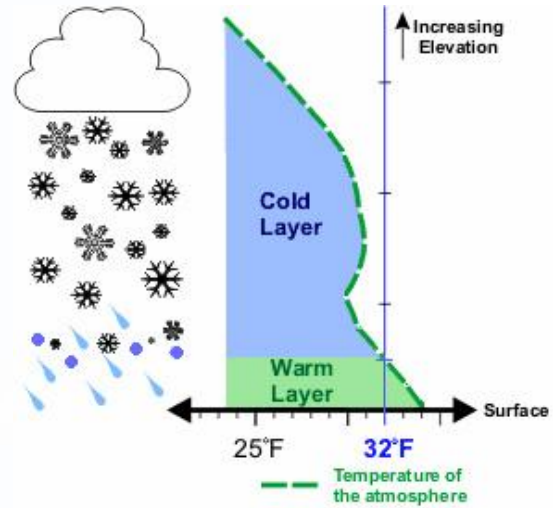
Snow

Sleet (melting snow) or rain

Freezing rain

Ice pellets