

FLIGHT AF447

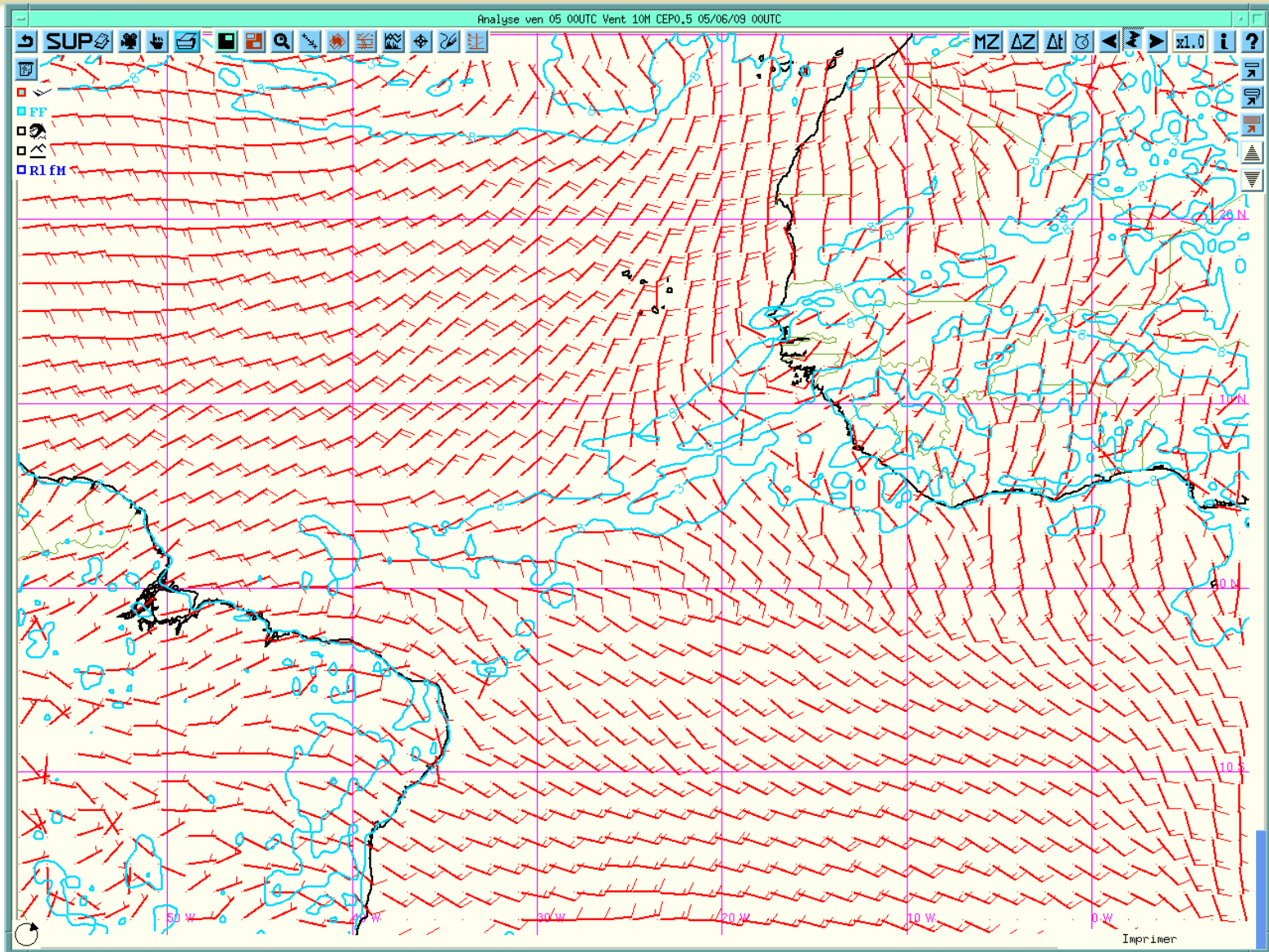
Preliminary analysis of meteorological conditions

Le Bourget, 6th June 2009



METEO FRANCE
Toujours un temps d'avance

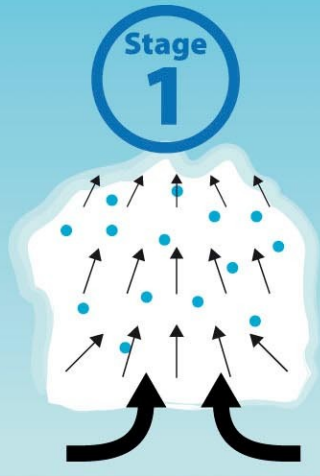
The Intertropical Convergence Zone (ITCZ)



Life cycle of a cumulonimbus



Altitude (km)



Cumulus

Temperature



→ Wind direction

● Rain

❄ Ice crystals

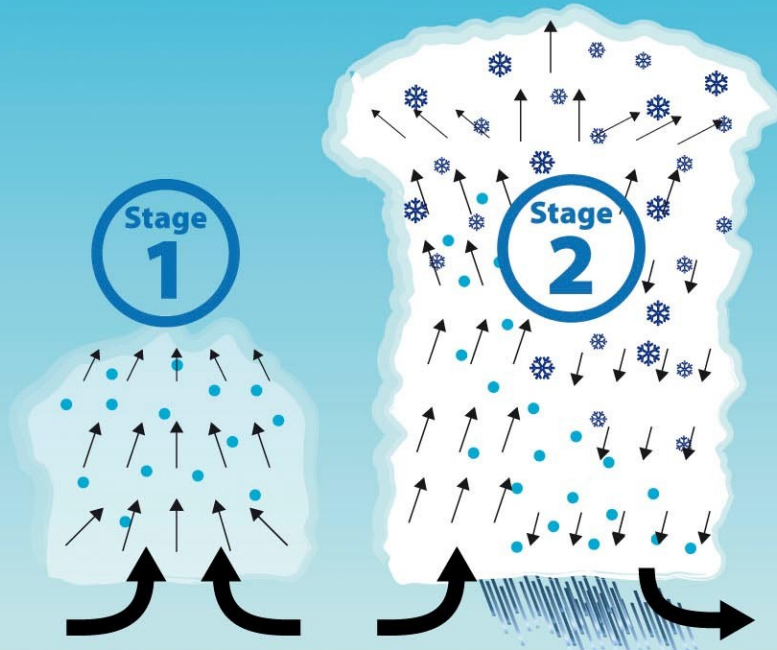
Life cycle of cumulonimbus

Altitude (km)

16
14
12
10
8
6
4
2

Temperature

-50 °C
-40 °C
-30 °C
-20 °C
-10 °C
0 °C
10 °C
20 °C



Cumulus

Development phase

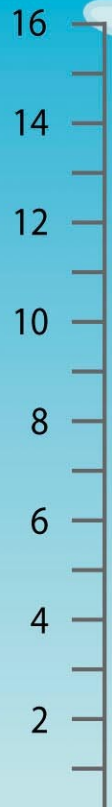
Life cycle of cumulonimbus

→ Wind direction

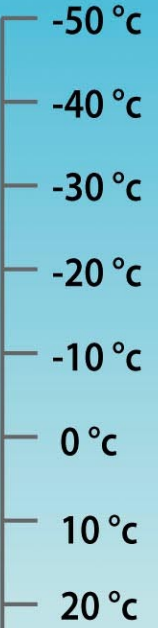
● Rain

❄ Ice crystals

Altitude (km)



Temperature



Stage 1

Stage 2

Stage 3

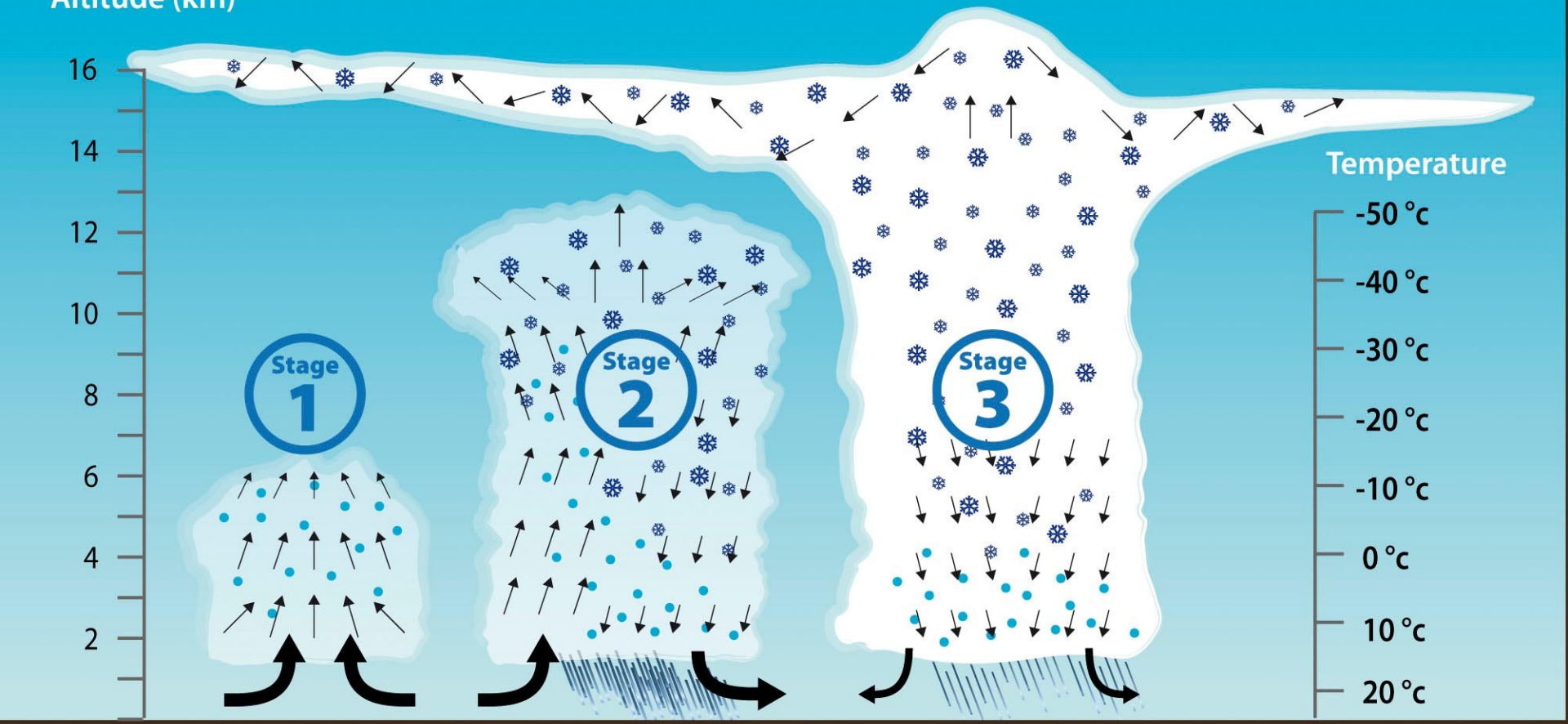
Cumulus

Development phase

Maturity/dissipation phase

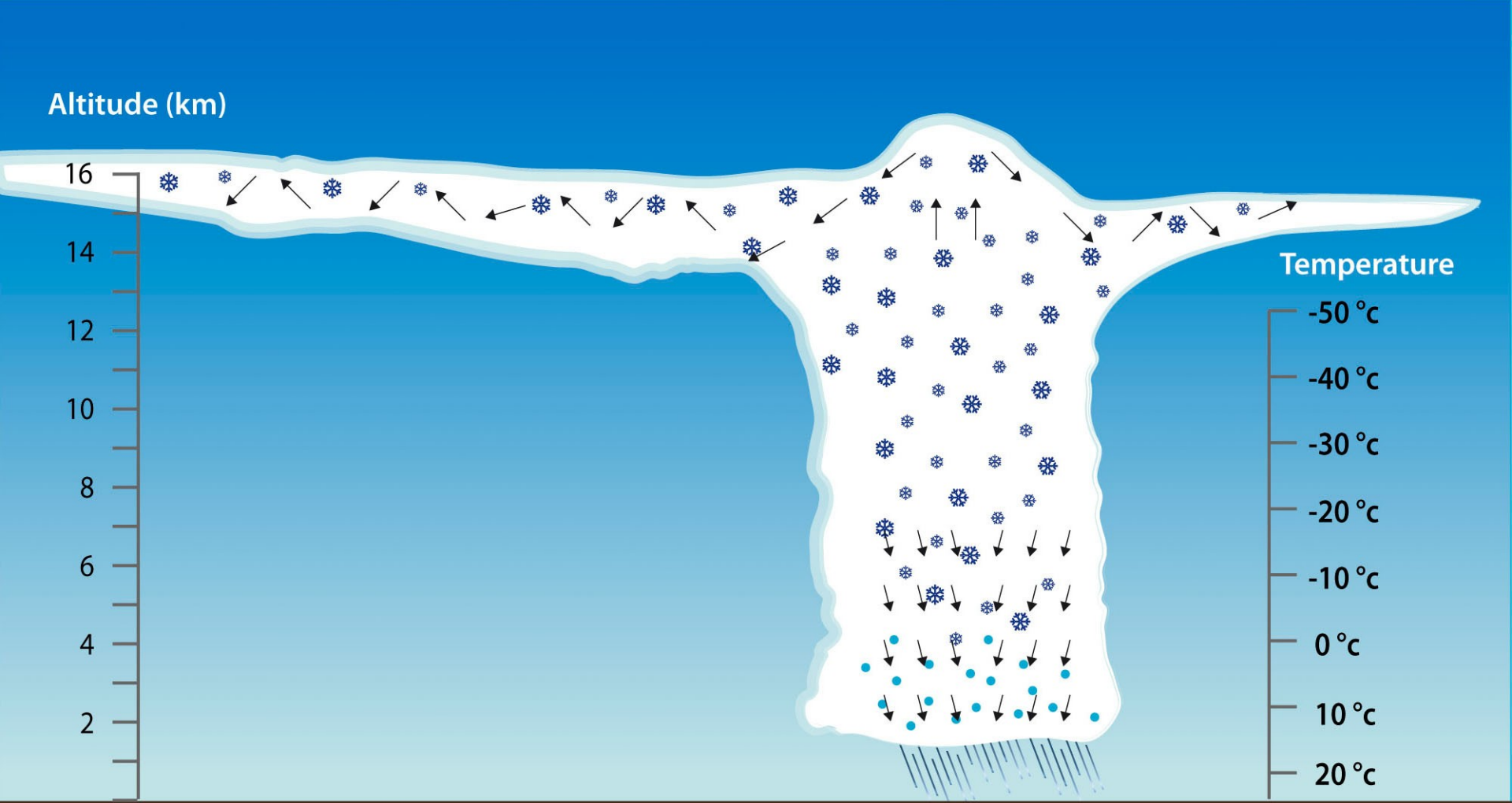
Life cycle of cumulonimbus

- Wind direction
- Rain
- ❄ Ice crystals



Build up of a cluster

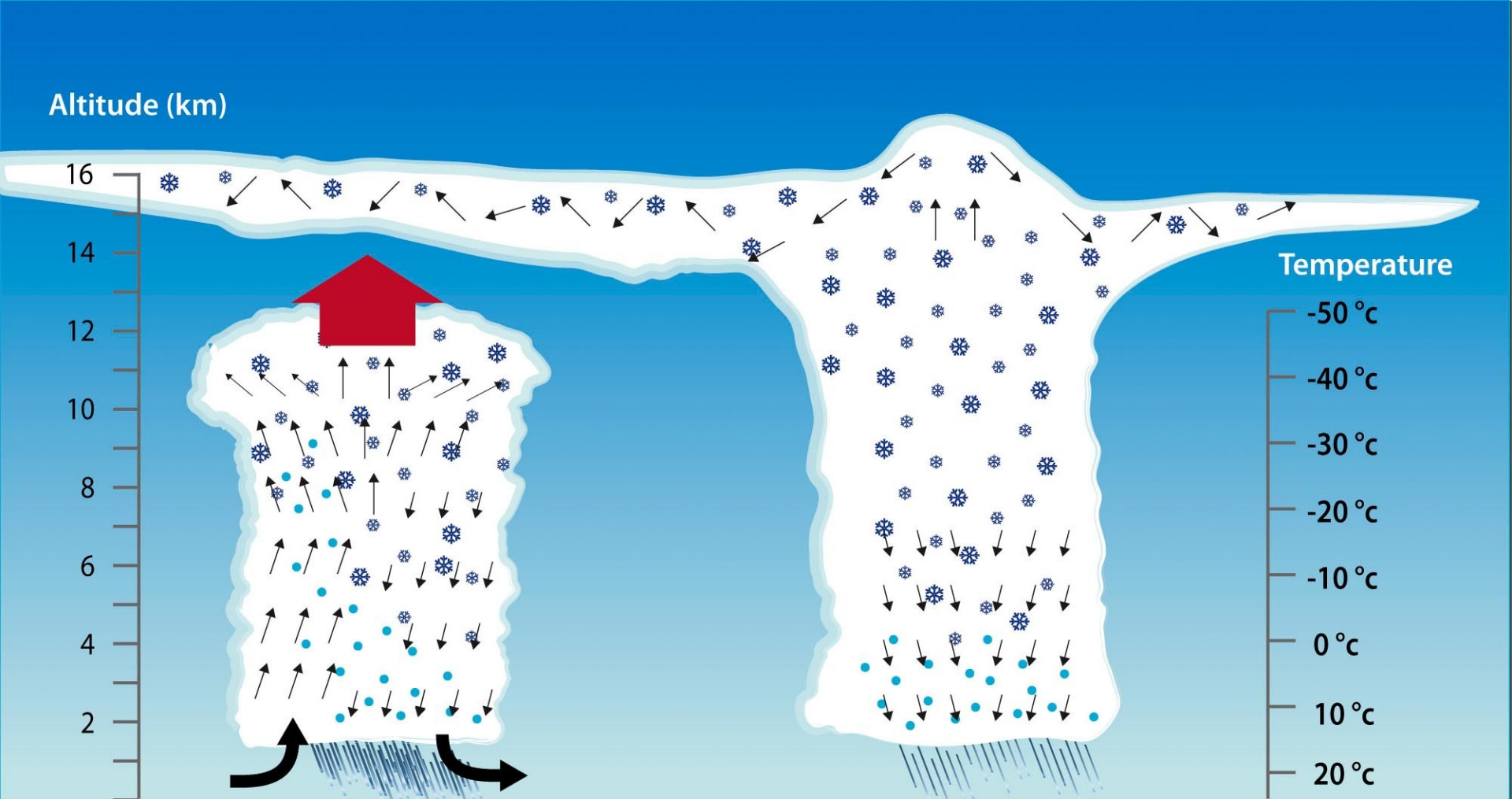




First cumulonimbus

Build up of a cluster




- Wind direction
- Rain
- ❄ Ice crystals

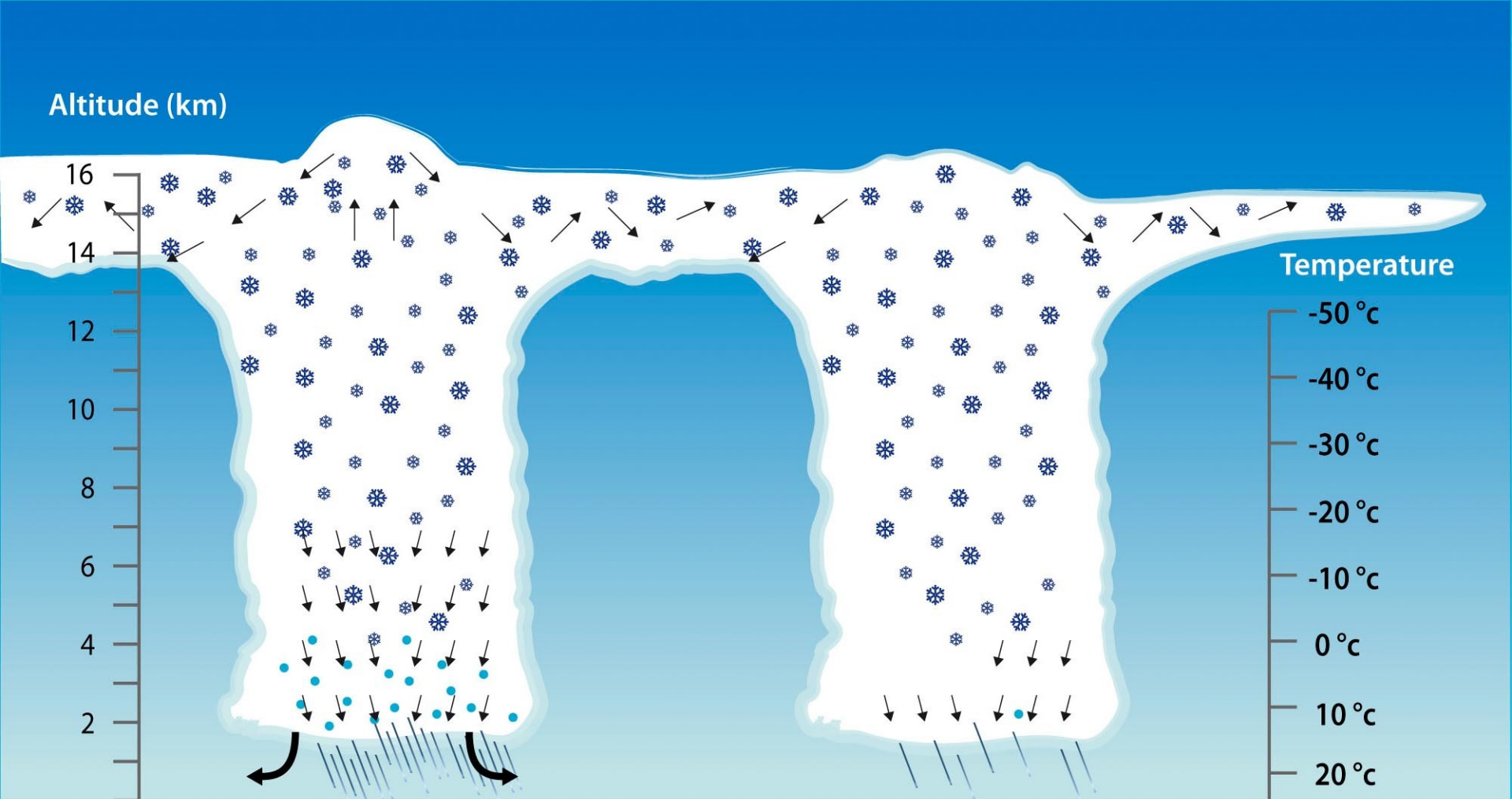


Second cumulonimbus
(in development phase)

First cumulonimbus

Build up of a cluster

-  Wind direction
-  Rain
-  Ice crystals



Second cumulonimbus

First cumulonimbus

Build up of a cluster

- Wind direction
- Rain
- ❄ Ice crystals

Analysis of weather conditions based on Meteosat infrared imagery



The meteorological conditions in the ITCZ as seen by Meteosat
(Infrared, from 30th May 0h UTC to 4th June 0h UTC)

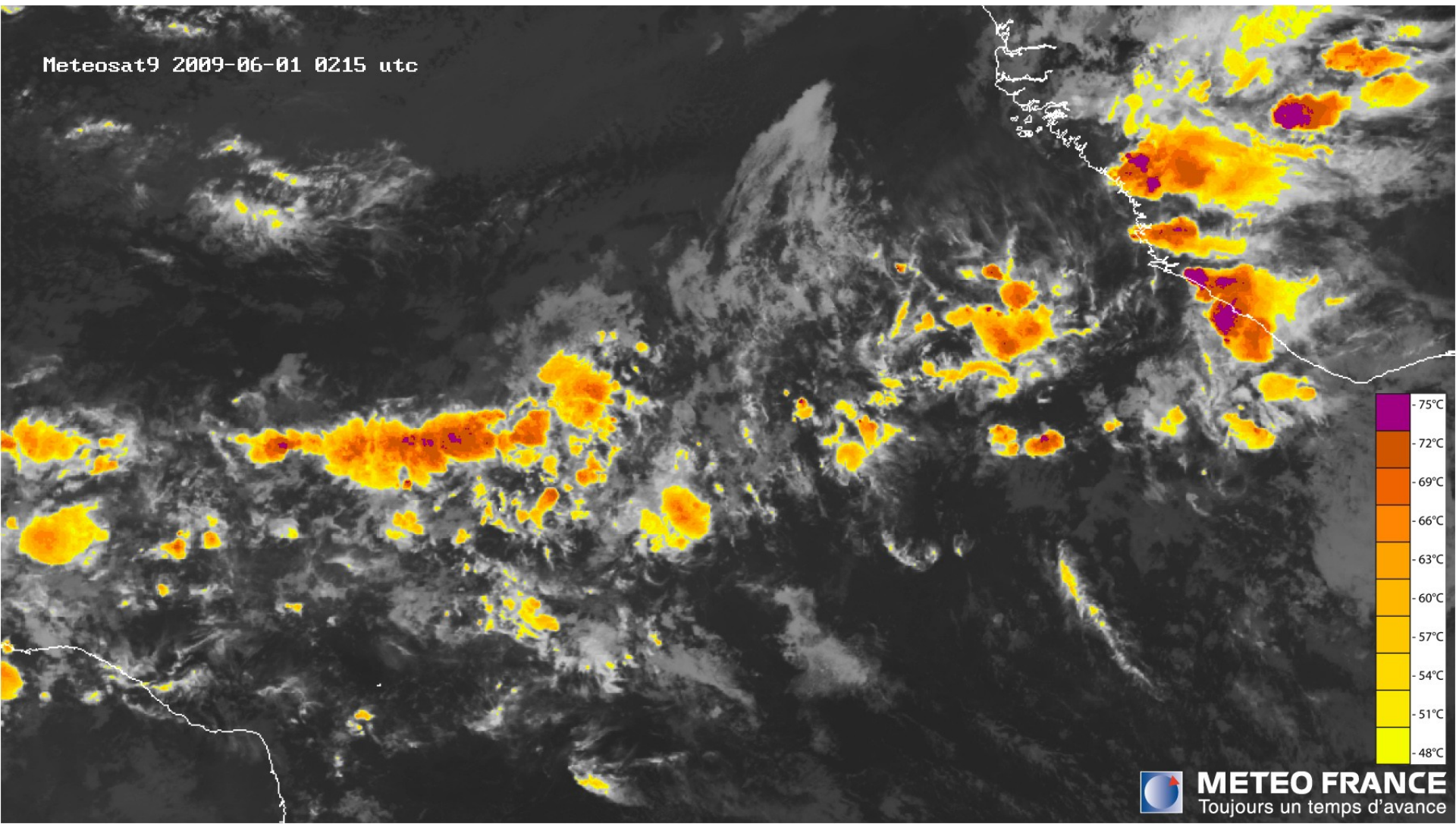
Animation

(Fichier avi/divx 5,44 Mo)



Zoom on 1st June at 2h15 UTC

Meteosat9 2009-06-01 0215 utc



Zoom on 1st June from 0h to 3h45 UTC

Animation

Fichier avi/divx 720 Ko



METEO FRANCE
Toujours un temps d'avance

Conclusions at this stage

- The general conditions in the Atlantic ITCZ are consistent with climatology for June. The ITCZ is marked by the development of powerful cumulonimbus and clusters that are typical of the zone
- The infrared images taken every 15 minutes by the geostationary satellites constitute the most relevant source of information to document the evolution of convective clusters and assess if they are of an exceptional nature or not
- The preliminary analysis of Meteosat imagery shows the existence of a powerful cluster in the vicinity of the planned aircraft trajectory. Around 2h UTC this cluster had started to decrease in intensity
- This analysis of infrared imagery does not allow to conclude to the exceptional nature of this cluster or to the exceptional intensity of convective activity that prevailed in the ITCZ area

