Viewing the weather forecast for thermal flying with Soaringmeteo

Goals

- Understand how Soaringmeteo can help you decide **where and when to fly**
- Use the new interface soarV2 efficiently

Outline

- What is a weather forecast?
- What type of forecast can we view on Soaringmeteo?
- How to decide where to fly?
- Which conditions are good for thermal flying?
- How to decide when to fly?
- Why and how to assess the atmosphere instability?

soaringmeteo.org

- Non-profit organization
- Publishes weather forecast results
- 3 volunteers
- Funded by donations from users (thank you!)
- Open-source (soarV2)

Learn more…

What is a weather forecast?

What is a weather forecast? (ideally)

Observations
(satellites, weather stations on the ground and in ships and planes)

What is a weather forecast? (ideally)

$$\rho\frac{\mathrm{D}\mathbf{u}}{\mathrm{D}t} = \rho\left(\frac{\partial \mathbf{u}}{\partial t} + (\mathbf{u}\cdot\nabla)\mathbf{u}\right) = -\nabla p + \nabla\cdot\left\{\mu\left[\nabla\mathbf{u} + (\nabla\mathbf{u})^{\mathrm{T}} - \tfrac{2}{3}(\nabla\cdot\mathbf{u})\mathbf{I}\right]\right\} + \rho\mathbf{g}.$$

Physics formula describing the behavior of fluids over time

What is a weather forecast? (ideally)

$$\rho\frac{\mathrm{D}\mathbf{u}}{\mathrm{D}t} = \rho\left(\frac{\partial \mathbf{u}}{\partial t} + (\mathbf{u}\cdot\nabla)\mathbf{u}\right) = -\nabla p + \nabla\cdot\left\{\mu\left[\nabla\mathbf{u} + (\nabla\mathbf{u})^{\mathrm{T}} - \tfrac{2}{3}(\nabla\cdot\mathbf{u})\mathbf{I}\right]\right\} + \rho\mathbf{g}.$$

Forecast of the state of the world at some point in time

What is a weather forecast? (ideally)

$$\rho\frac{\mathrm{D}\mathbf{u}}{\mathrm{D}t} = \rho\left(\frac{\partial \mathbf{u}}{\partial t} + (\mathbf{u}\cdot\nabla)\mathbf{u}\right) = -\nabla p + \nabla\cdot\left\{\mu\left[\nabla\mathbf{u} + (\nabla\mathbf{u})^{\mathrm{T}} - \tfrac{2}{3}(\nabla\cdot\mathbf{u})\mathbf{I}\right]\right\} + \rho\mathbf{g}.$$

What is a weather forecast? (ideally)

$$\rho\frac{\mathrm{D}\mathbf{u}}{\mathrm{D}t} = \rho\left(\frac{\partial \mathbf{u}}{\partial t} + (\mathbf{u}\cdot\nabla)\mathbf{u}\right) = -\nabla p + \nabla\cdot\left\{\mu\left[\nabla\mathbf{u} + (\nabla\mathbf{u})^{\mathrm{T}} - \tfrac{2}{3}(\nabla\cdot\mathbf{u})\mathbf{I}\right]\right\} + \rho\mathbf{g}.$$

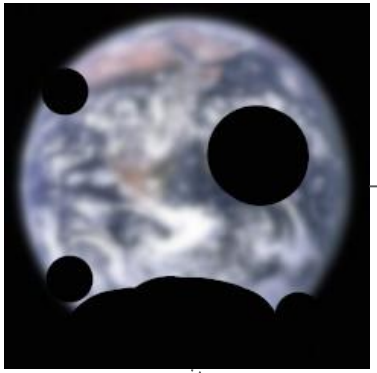
Why are forecasts never perfectly correct?

What is a weather forecast? (really?)

$$\rho\frac{\mathrm{D}\mathbf{u}}{\mathrm{D}t} = \rho\left(\frac{\partial \mathbf{u}}{\partial t} + (\mathbf{u}\cdot\nabla)\mathbf{u}\right) = -\nabla p + \nabla\cdot\left\{\mu\left[\nabla\mathbf{u} + (\nabla\mathbf{u})^{\mathrm{T}} - \tfrac{2}{3}(\nabla\cdot\mathbf{u})\mathbf{I}\right]\right\} + \rho\mathbf{g}.$$

Imprécisions of observations

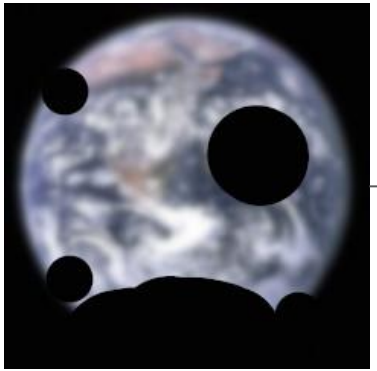
What is a weather forecast? (really?)



$$\rho\frac{\mathrm{D}\mathbf{u}}{\mathrm{D}t} = \rho\left(\frac{\partial \mathbf{u}}{\partial t} + (\mathbf{u}\cdot\nabla)\mathbf{u}\right) = -\nabla p + \nabla\cdot\left\{\mu\left[\nabla\mathbf{u} + (\nabla\mathbf{u})^{\mathrm{T}} - \tfrac{2}{3}(\nabla\cdot\mathbf{u})\mathbf{I}\right]\right\} + \rho\mathbf{g}.$$

Missing areas

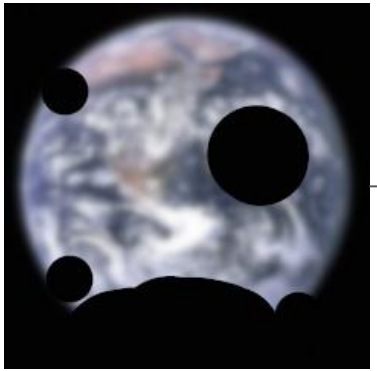
What is a weather forecast? (really?)



$$r = r_0 + vt - \frac{1}{2}at^2$$

Simplified physical model to reduce computational costs

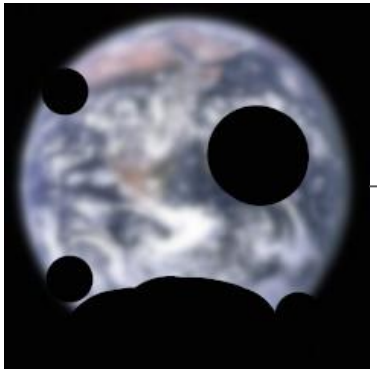
What is a weather forecast? (really?)



$$r = r_0 + vt - \frac{1}{2}at^2$$

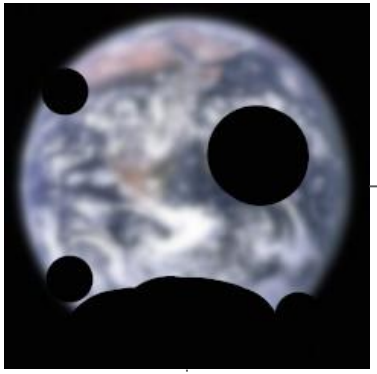
Simplified model of the world to reduce computational costs

What is a weather forecast? (really.)



$$r = r_0 + vt - \frac{1}{2}at^2$$

What is a weather forecast? (really.)



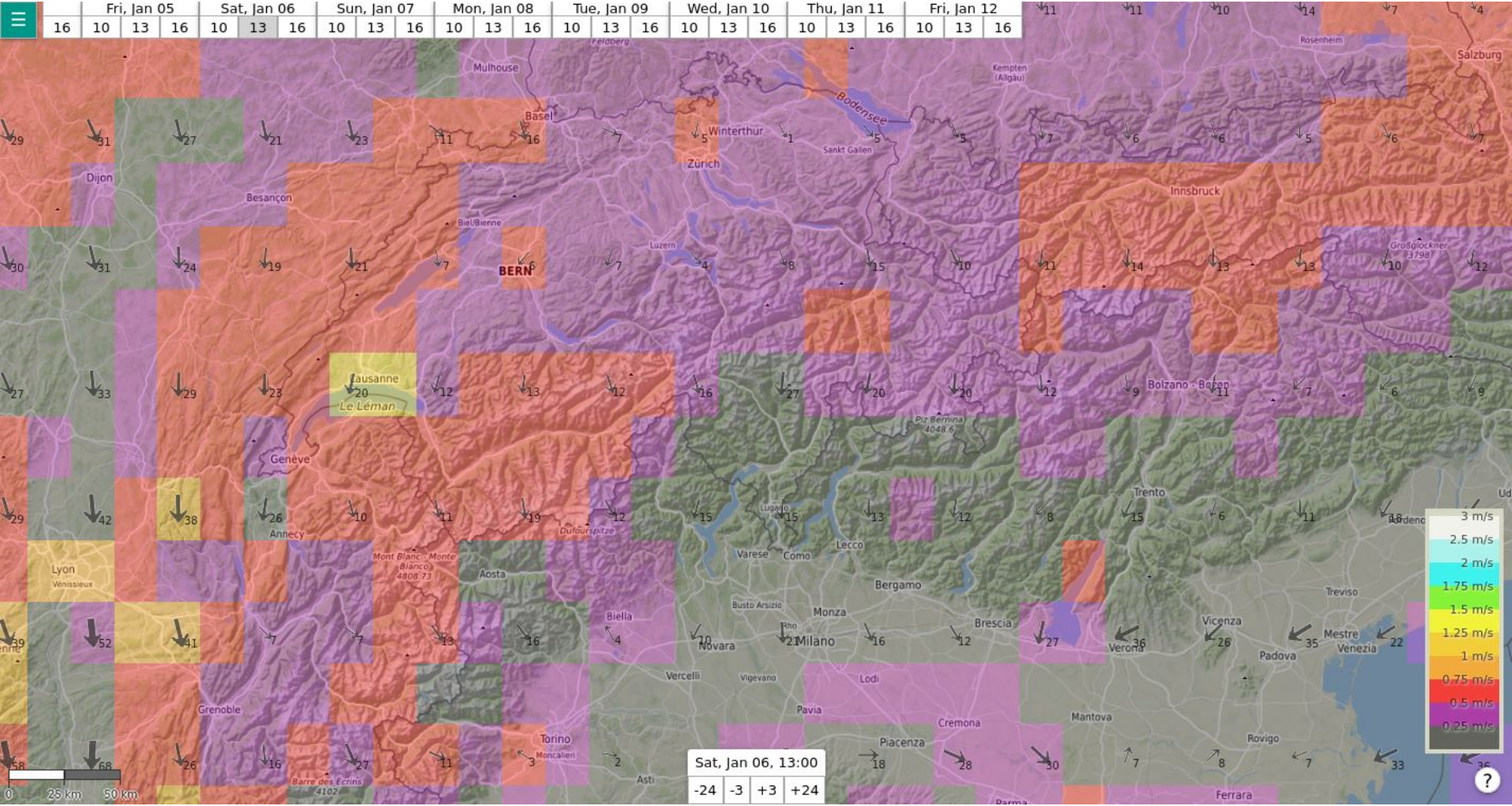
$$r = r_0 + vt - \frac{1}{2}at^2$$

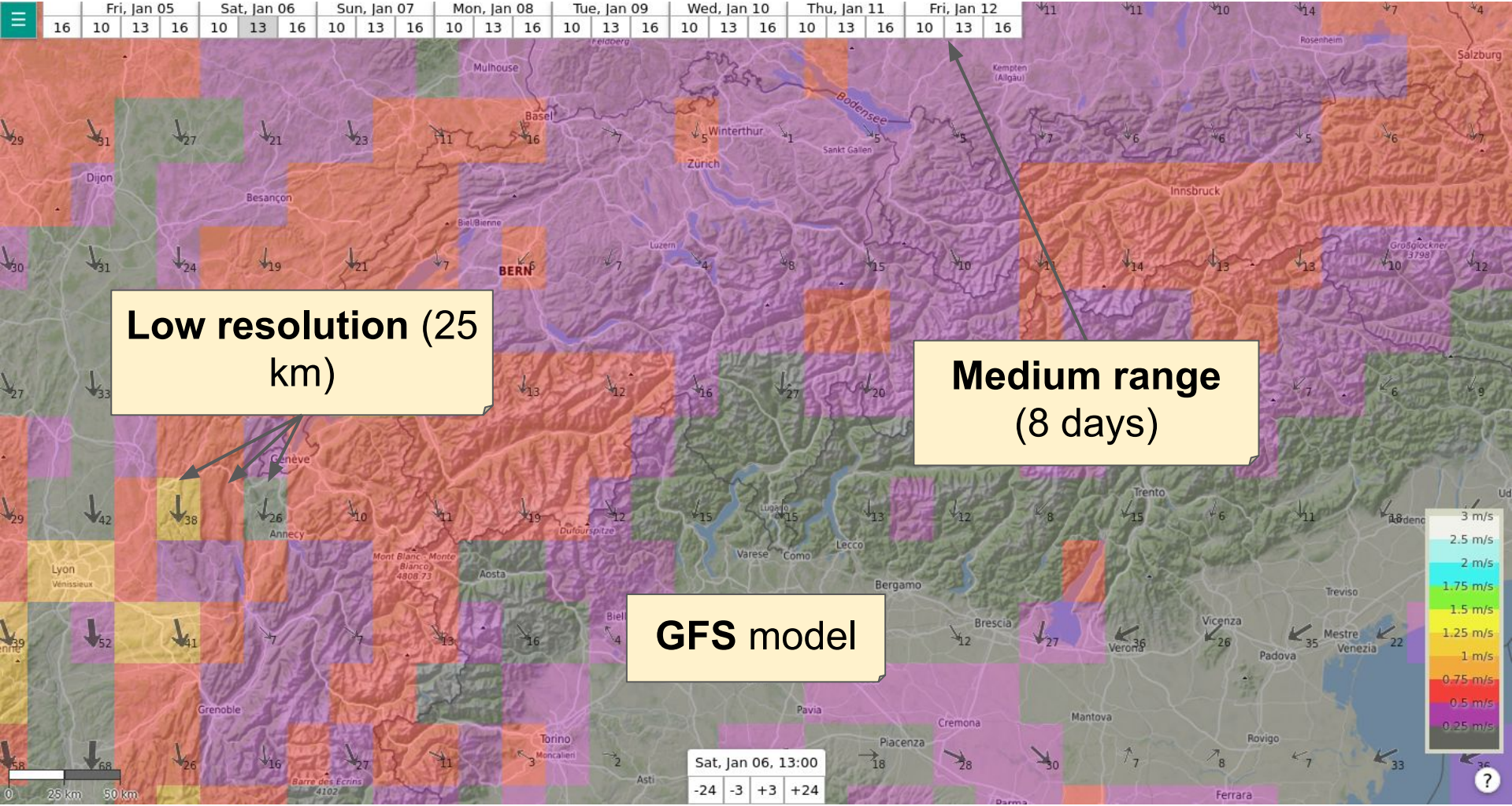
Initial state (observation or another forecast)

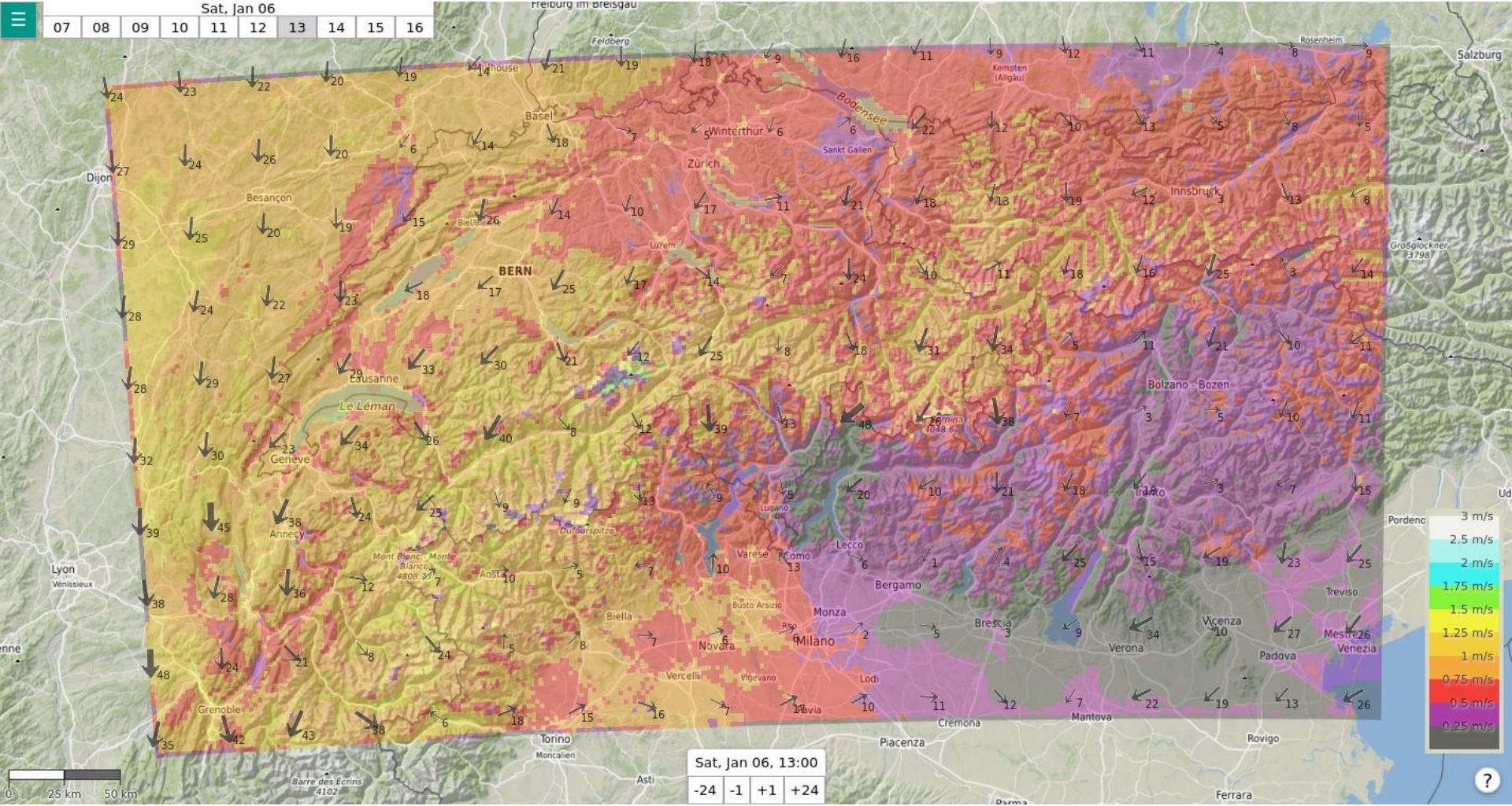
Physical model

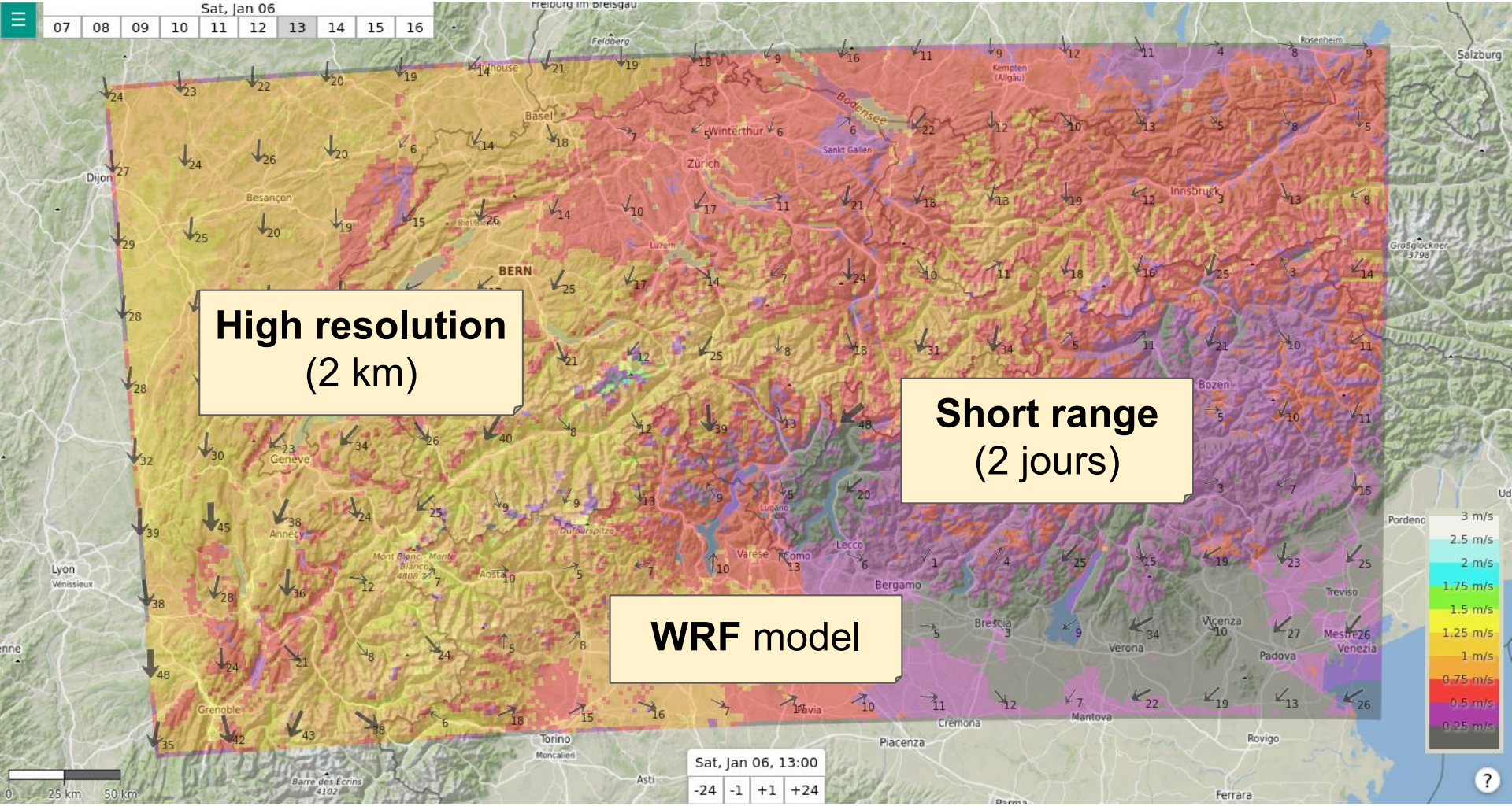
Forecast

In practice, which weather forecasts can we view on Soaringmeteo?


Fri, Jan 05
Sat, Jan 06
Sun, Jan 07
Mon, Jan 08
Tue, Jan 09
Wed, Jan 10
Thu, Jan 11
Fri, Jan 12
16 10 13 16 10 13 16 10 13 16 10 13 16 10 13 16 10 13 16 10 13 16 10 13 16
Sat, Jan 06, 13:00
-24 -3 +3 +24
3 m/s
2.5 m/s
2 m/s
1.75 m/s
1.5 m/s
1.25 m/s
1 m/s
0.75 m/s
0.5 m/s
0.25 m/s
0 25 km 50 km
Mulhouse
Basel
Winterthur
Zürich
Sankt Gallen
Bodensee
Kempten (Allgäu)
Rosenheim
Salzburg
Innsbruck
Dijon
Besançon
Biel/Bienne
Luzern
BERN
Lausanne
Le Léman
Genève
Annecy
Lyon
Villeurbanne
Mont Blanc - Monte Bianco 4808.73
Aosta
Grenoble
Barre des Écrins 4102
Torino
Moncalieri
Asti
Biella
Vercelli
Novara
Milano
Busto Arsizio
Monza
Rho
Varese
Como
Lugano
Lecco
Bergamo
Brescia
Piz Bernina 4048.6
Bolzano - Bozen
Trento
Verona
Vicenza
Padova
Mestre
Venezia
Treviso
Vigevano
Lodi
Pavia
Cremona
Mantova
Piacenza
Rovigo
Ferrara
Parma
Udine
Grossglockner 3798
Dufourspitze


Fri, Jan 05
Sat, Jan 06
Sun, Jan 07
Mon, Jan 08
Tue, Jan 09
Wed, Jan 10
Thu, Jan 11
Fri, Jan 12
16 10 13 16 10 13 16 10 13 16 10 13 16 10 13 16 10 13 16 10 13 16 10 13 16
Low resolution (25 km)
Medium range (8 days)
GFS model
Sat, Jan 06, 13:00
-24 -3 +3 +24
3 m/s
2.5 m/s
2 m/s
1.75 m/s
1.5 m/s
1.25 m/s
1 m/s
0.75 m/s
0.5 m/s
0.25 m/s
0 25 km 50 km


Sat, Jan 06
07
08
09
10
11
12
13
14
15
16
BERN
Zürich
Basel
Winterthur
Sankt Gallen
Bodensee
Freiburg im Breisgau
Feldberg
Rosenheim
Salzburg
Kempten (Allgäu)
Innsbruck
Großglockner 3798
Dijon
Besançon
Biel/Bienne
Luzern
Lausanne
Le Léman
Genève
Annecy
Lyon
Vénissieux
Grenoble
Barre des Ecrins 4102
Mont Blanc - Monte Bianco 4808 m
Aosta
Torino
Moncalieri
Asti
Biella
Vercelli
Novara
Milano
Monza
Busto Arsizio
Varese
Como
Lecco
Lugano
Bergamo
Brescia
Verona
Vicenza
Padova
Venezia
Mestre
Treviso
Udine
Pordenone
Lodi
Pavia
Cremona
Mantova
Piacenza
Rovigo
Ferrara
Parma
Bolzano - Bozen
Trento
Cremona 1044 m
Lugano
Dufourspitze
Sat, Jan 06, 13:00
-24
-1
+1
+24
3 m/s
2.5 m/s
2 m/s
1.75 m/s
1.5 m/s
1.25 m/s
1 m/s
0.75 m/s
0.5 m/s
0.25 m/s
0
25 km
50 km
?


Sat, Jan 06
07
08
09
10
11
12
13
14
15
16
High resolution
(2 km)
Short range
(2 jours)
WRF model
3 m/s
2.5 m/s
2 m/s
1.75 m/s
1.5 m/s
1.25 m/s
1 m/s
0.75 m/s
0.5 m/s
0.25 m/s
Sat, Jan 06, 13:00
-24
-1
+1
+24
0
25 km
50 km

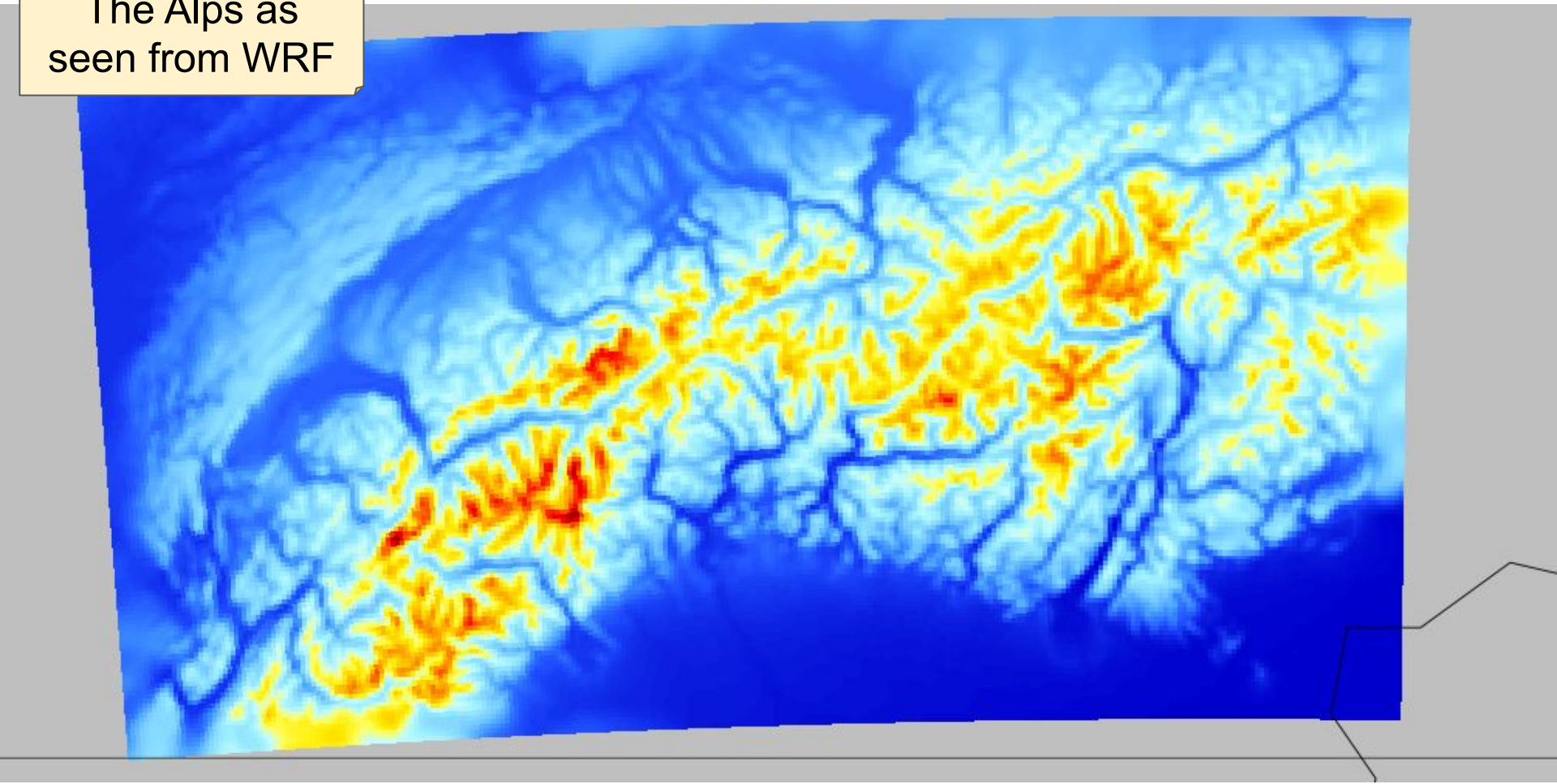
Why provide two models?
Why not just use GFS?

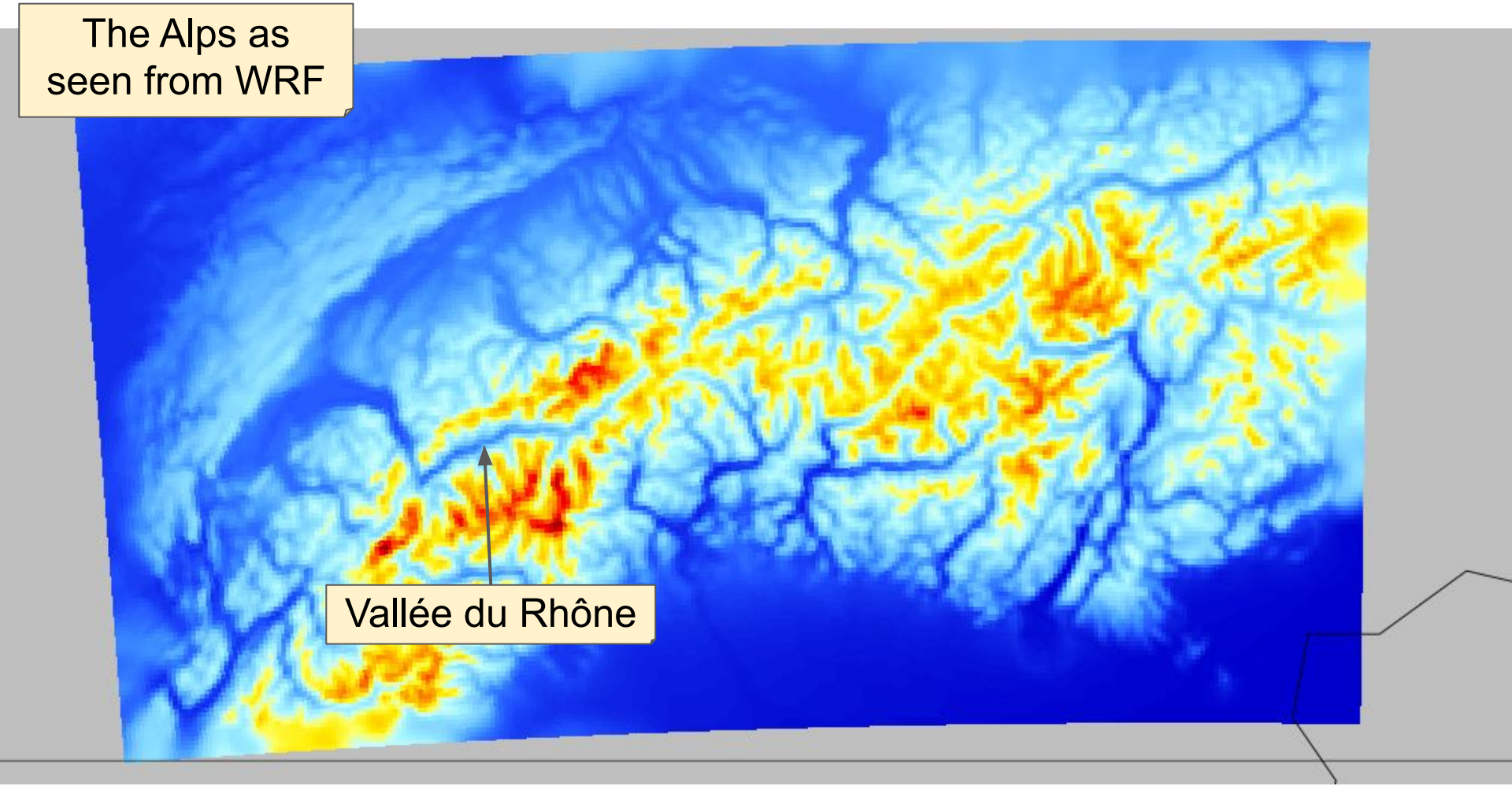
The model resolution impacts the scale of the computed meteorological phenomena

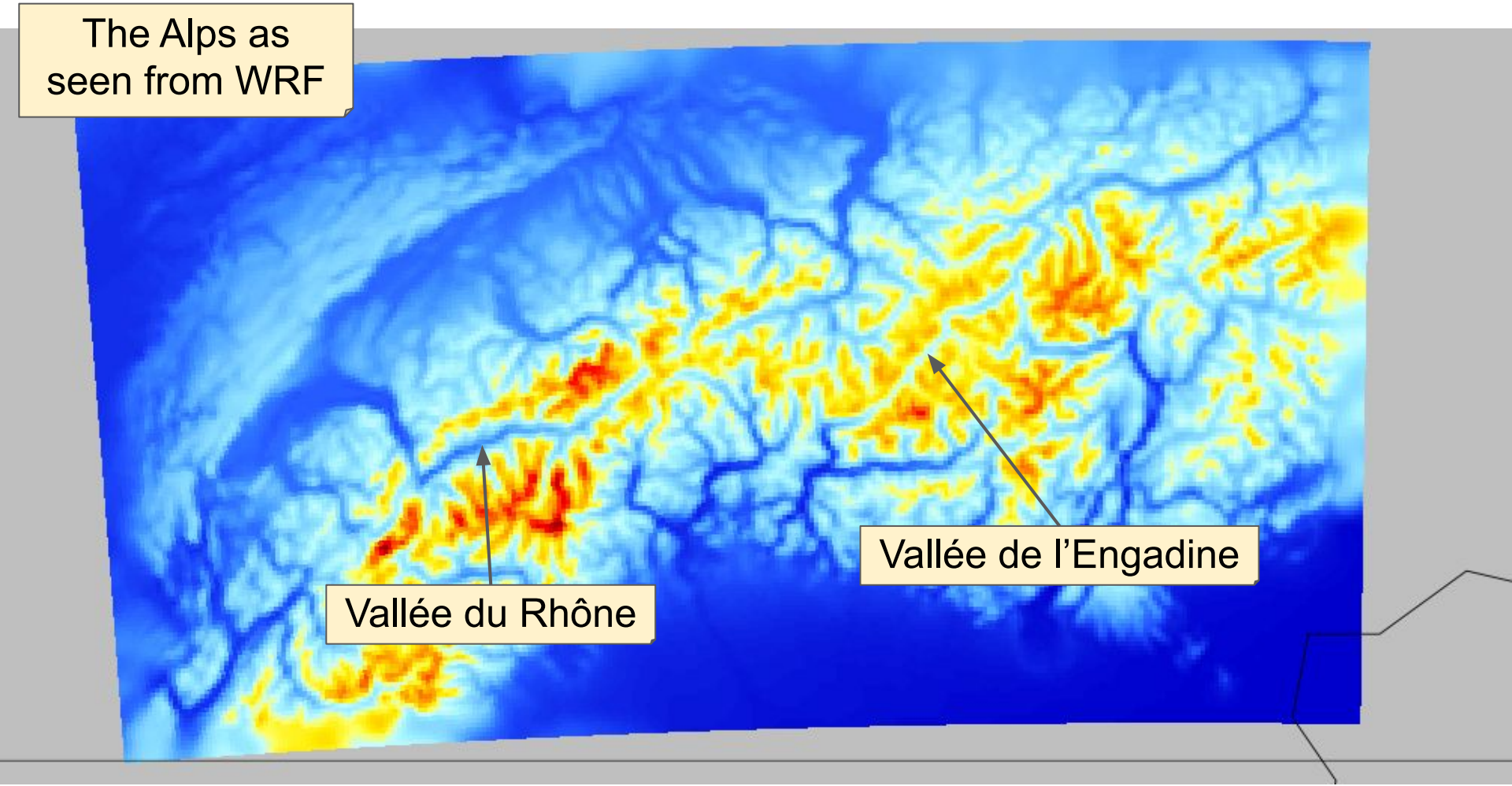
The model resolution impacts the scale of the computed meteorological phenomena

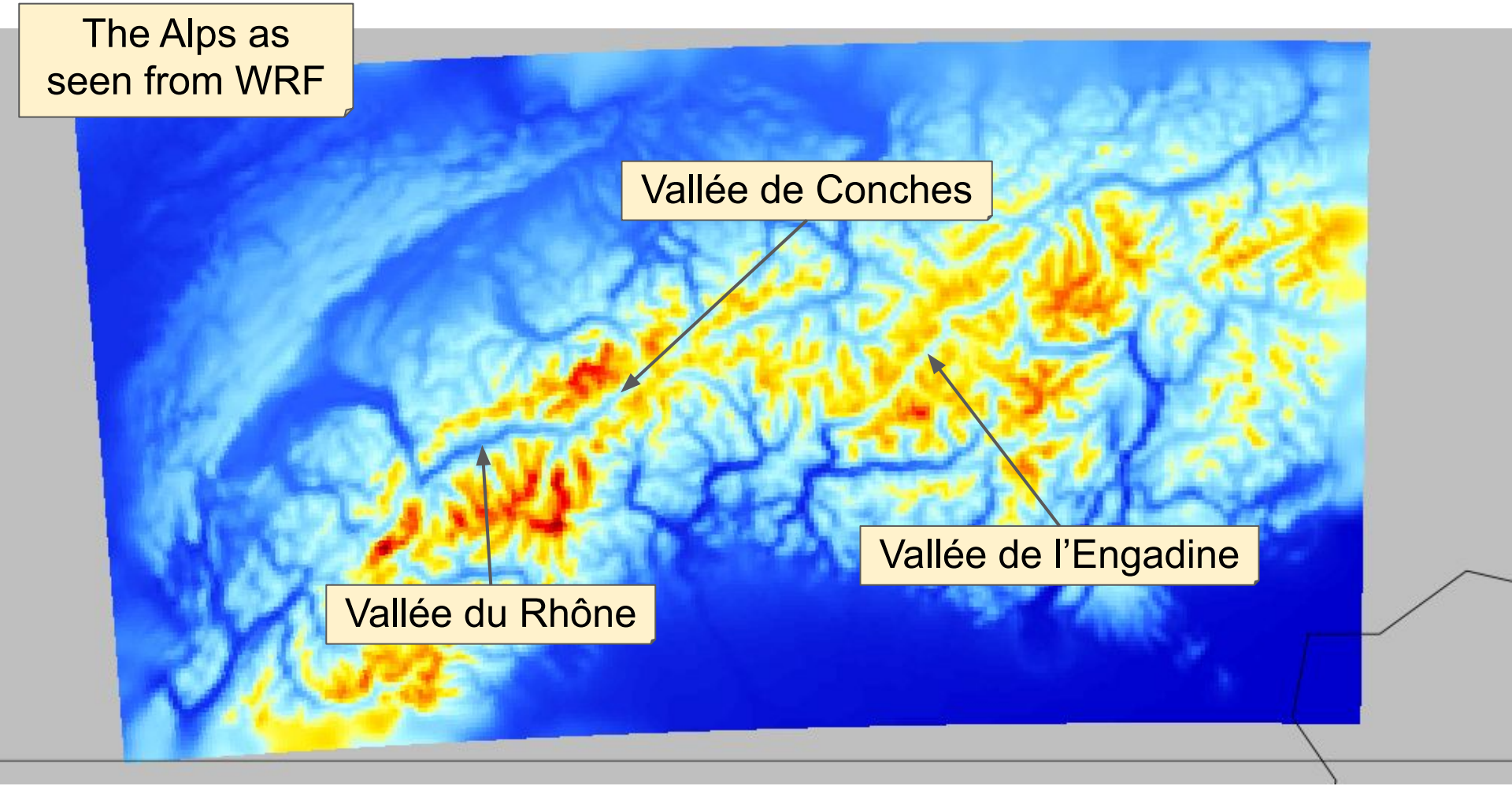
The WRF model resolves the behavior of the atmosphere in **Alpine valleys**

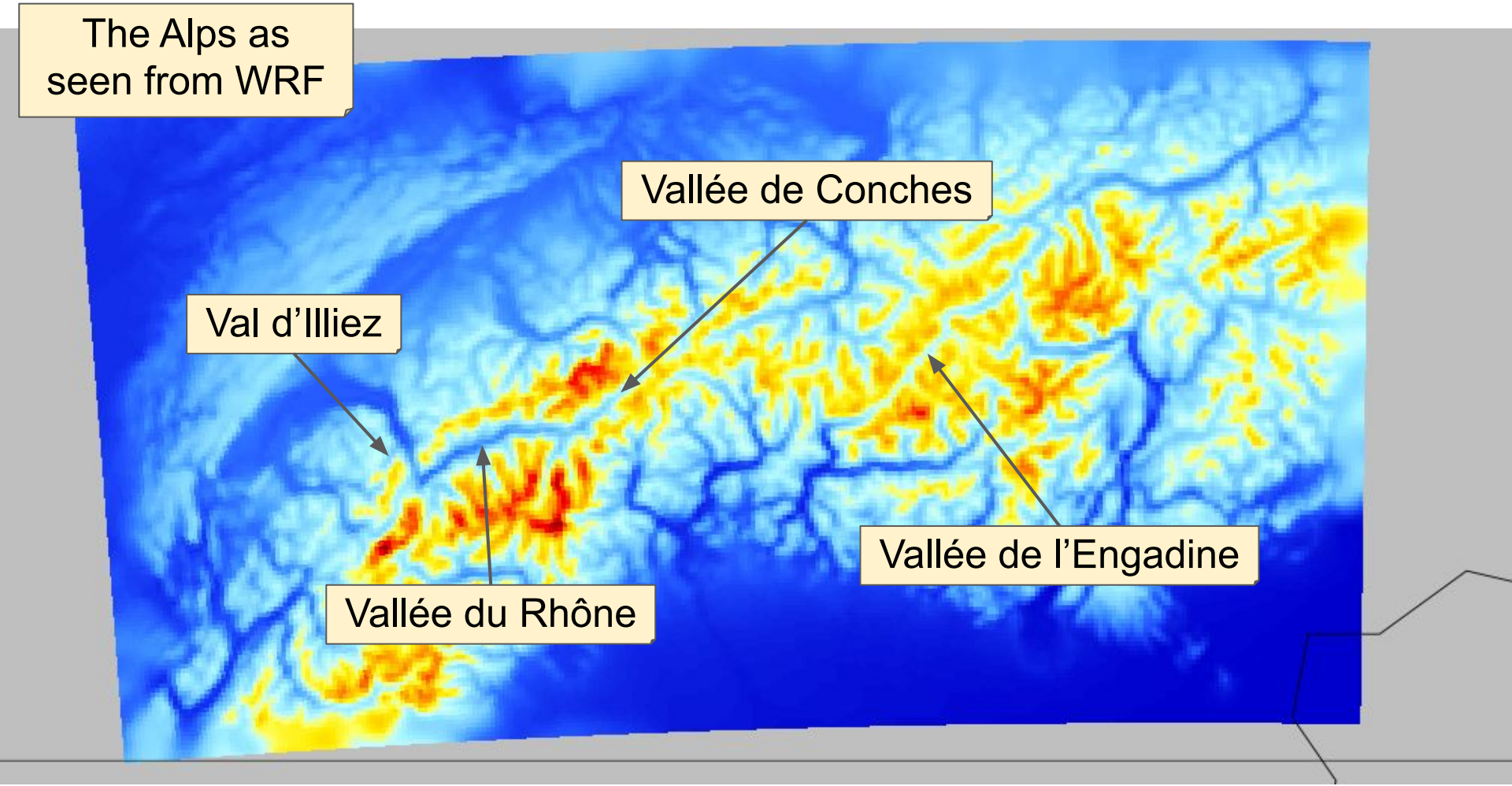
The Alps as seen from WRF

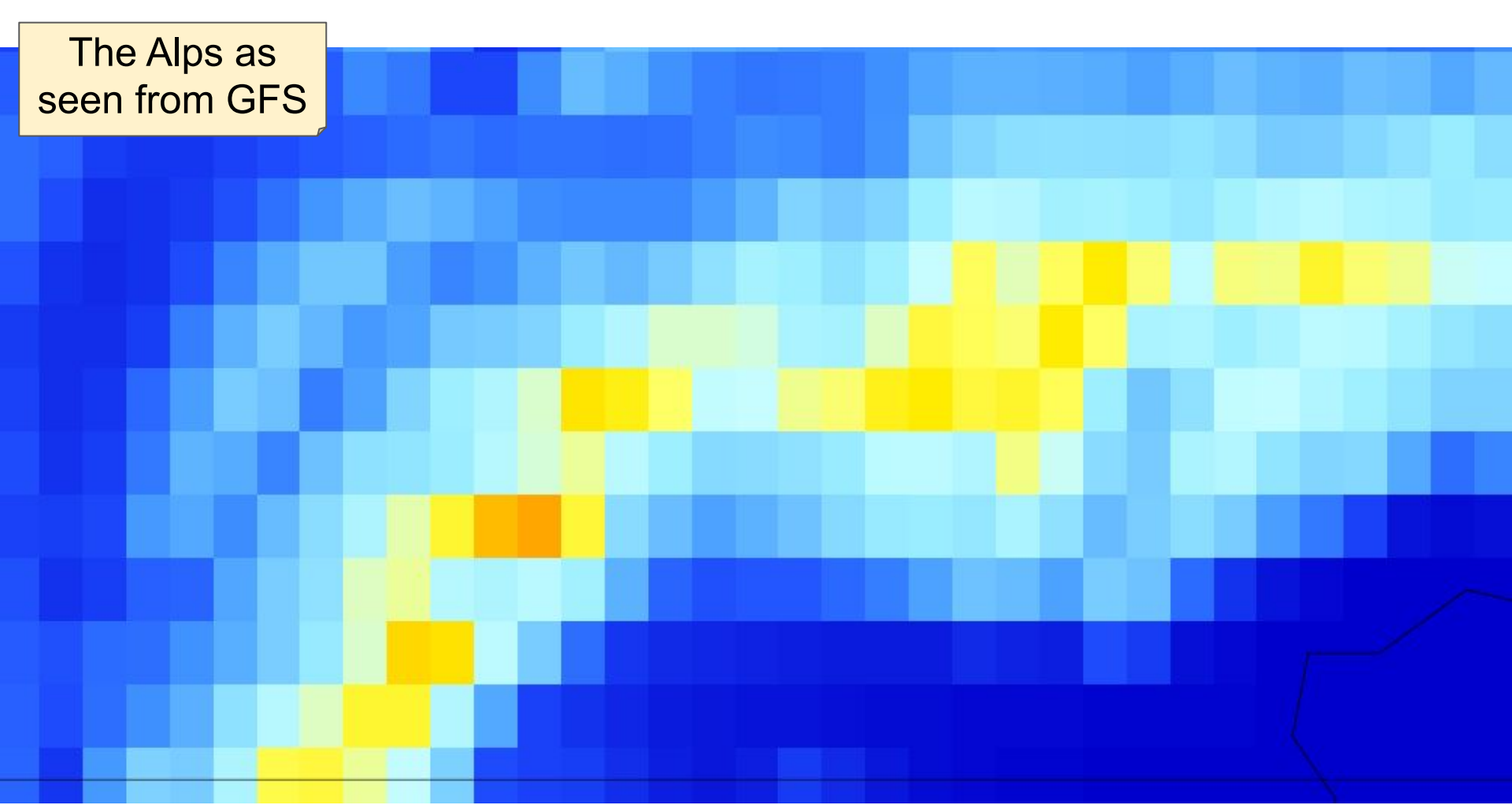


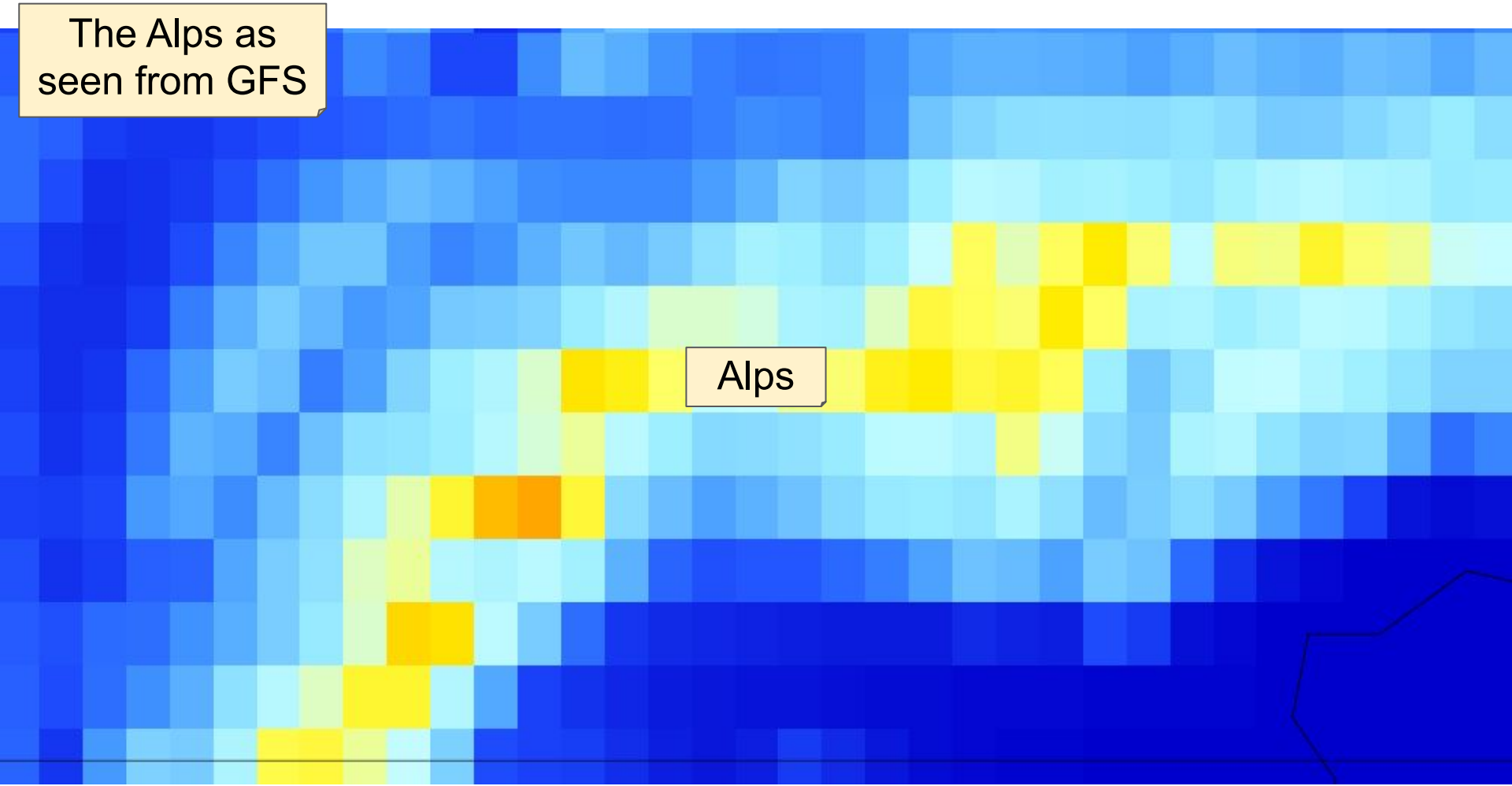

The Alps as seen from WRF
Vallée du Rhône

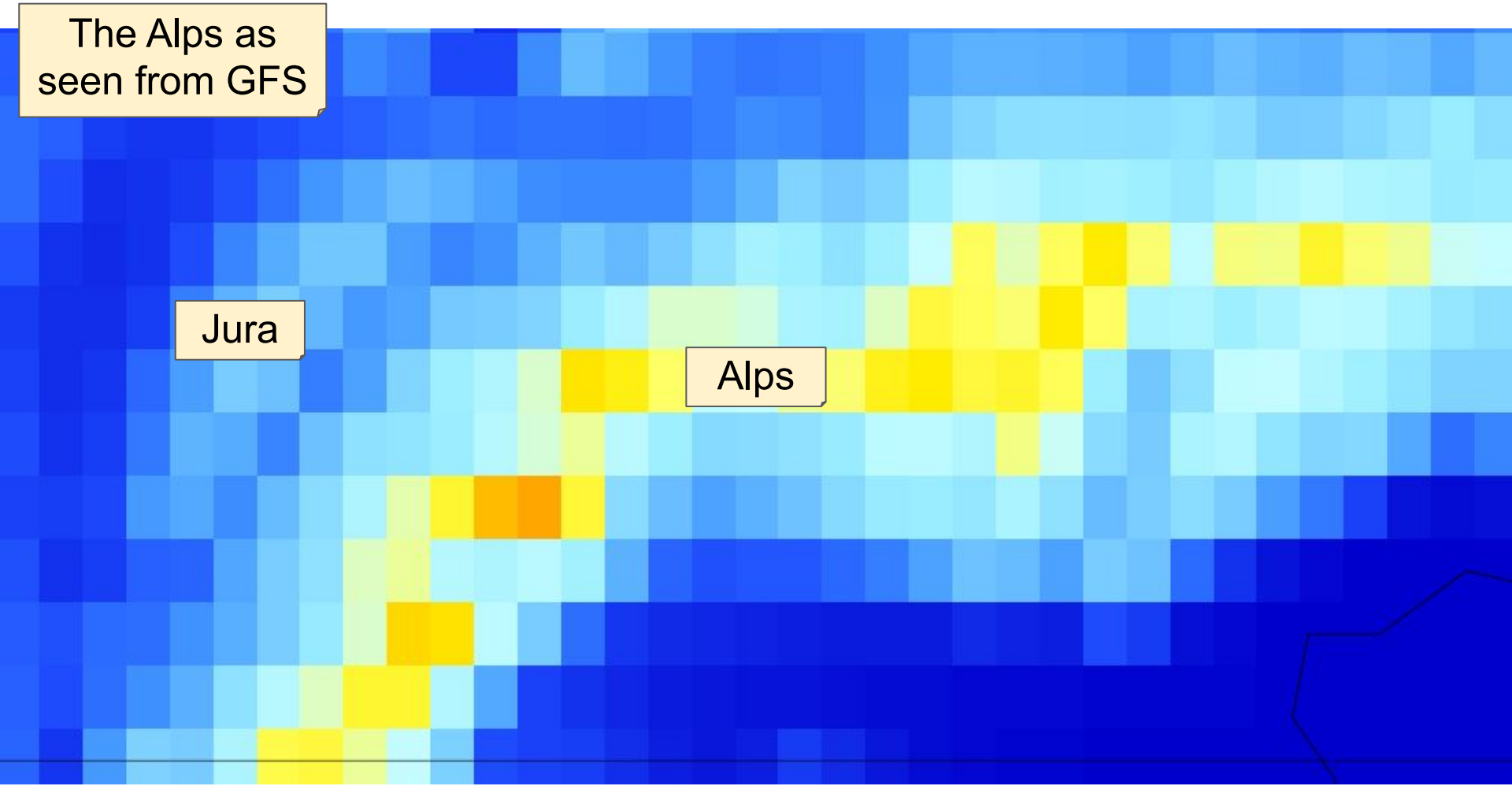

The Alps as seen from WRF
Vallée du Rhône
Vallée de l'Engadine

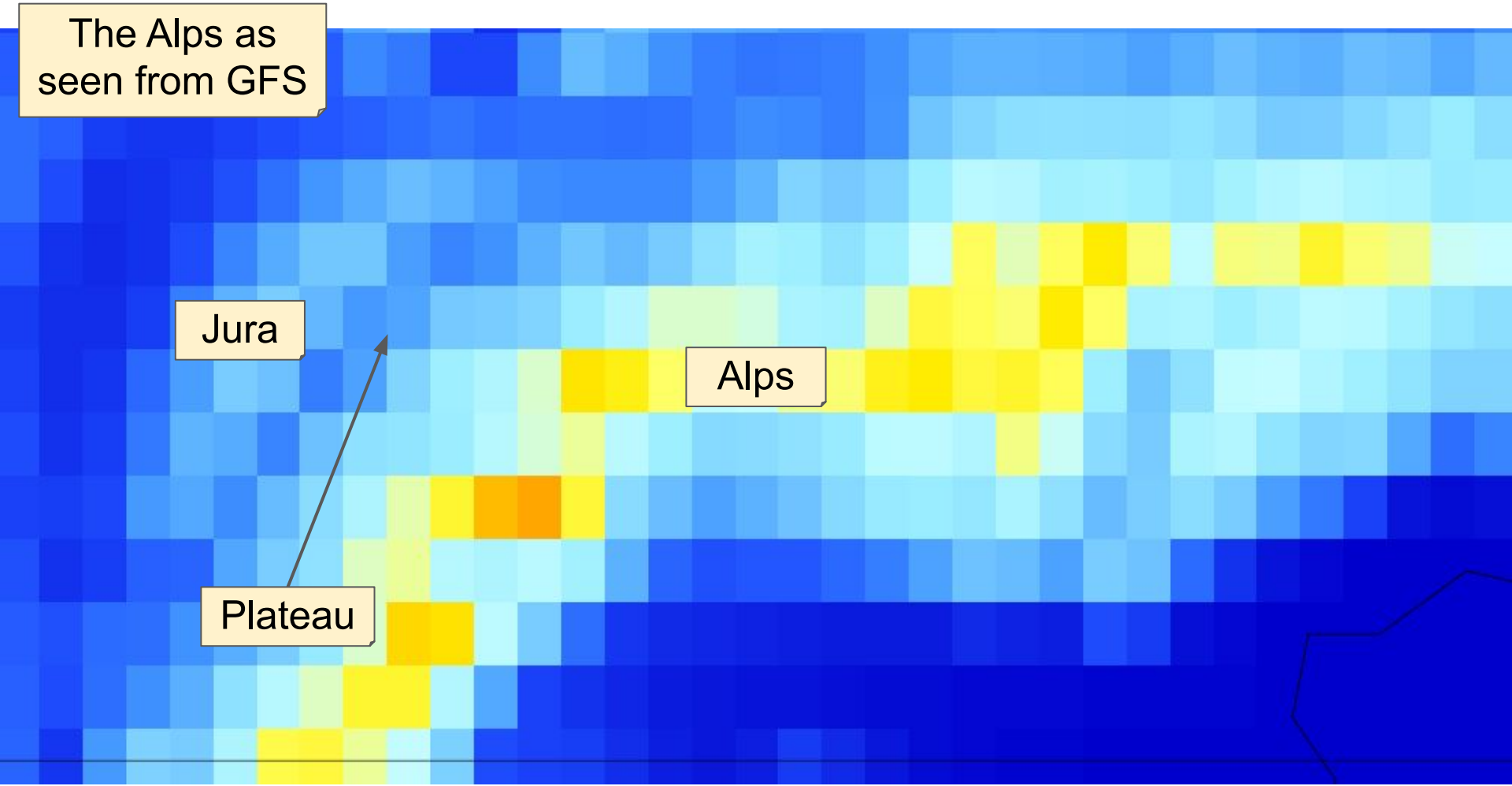

The Alps as seen from WRF
Vallée de Conches
Vallée du Rhône
Vallée de l'Engadine


The Alps as seen from WRF
Vallée de Conches
Val d'Illiez
Vallée du Rhône
Vallée de l'Engadine


The Alps as
seen from GFS

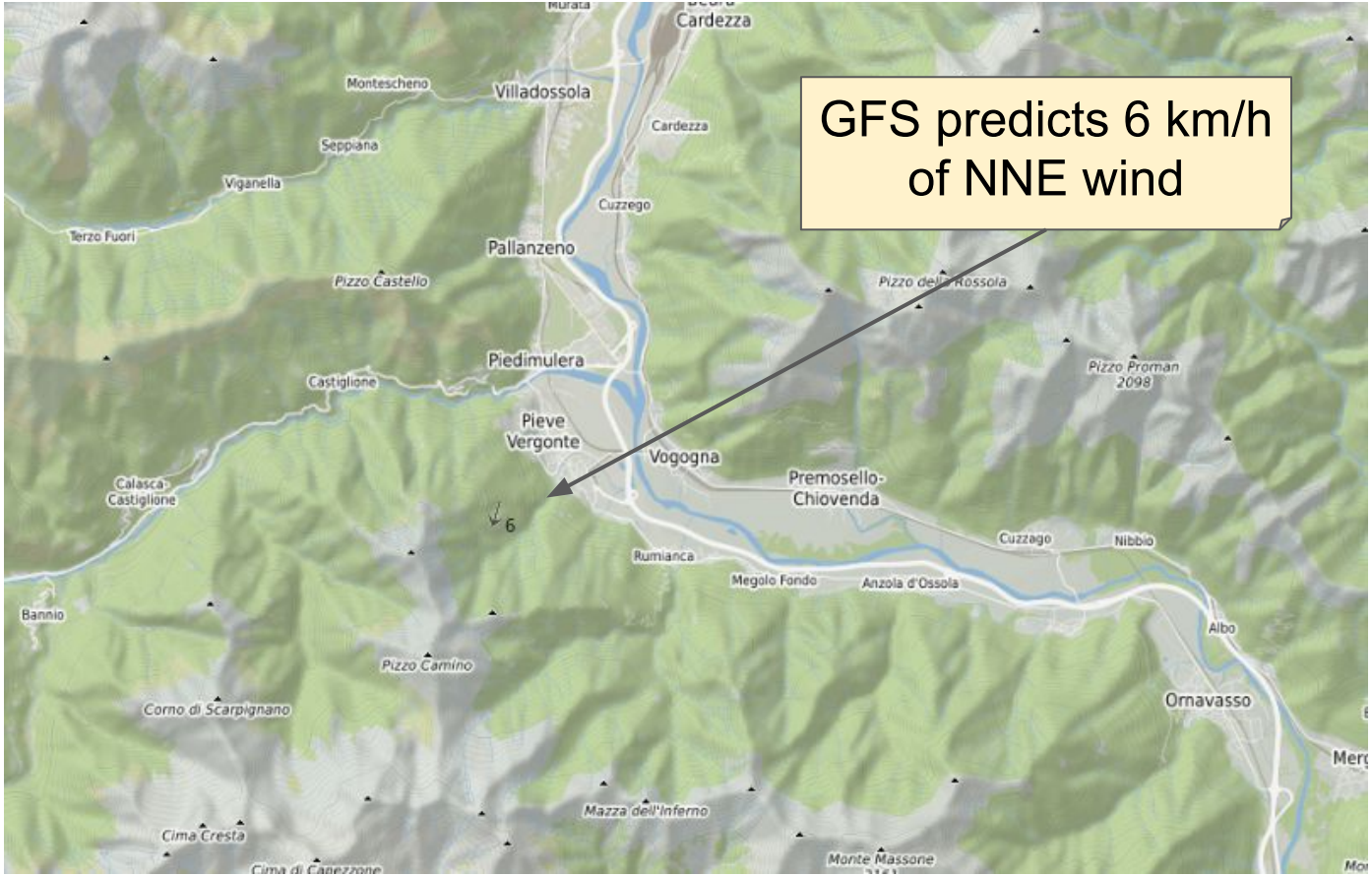

The Alps as seen from GFS
Alps


The Alps as seen from GFS
Jura
Alps

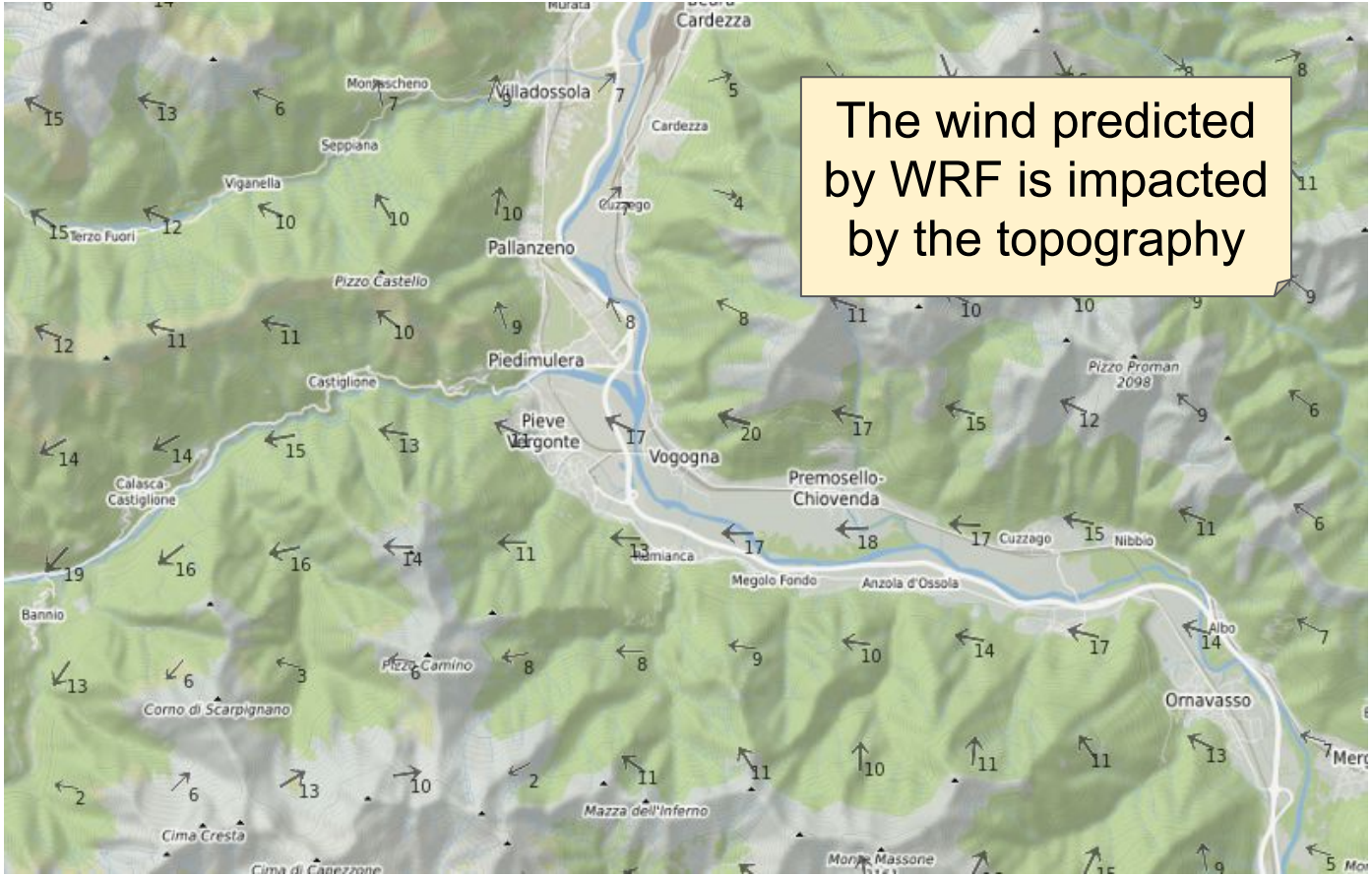

The Alps as seen from GFS
Jura
Alps
Plateau

Taking into account the model resolution helps **interpret** the forecast

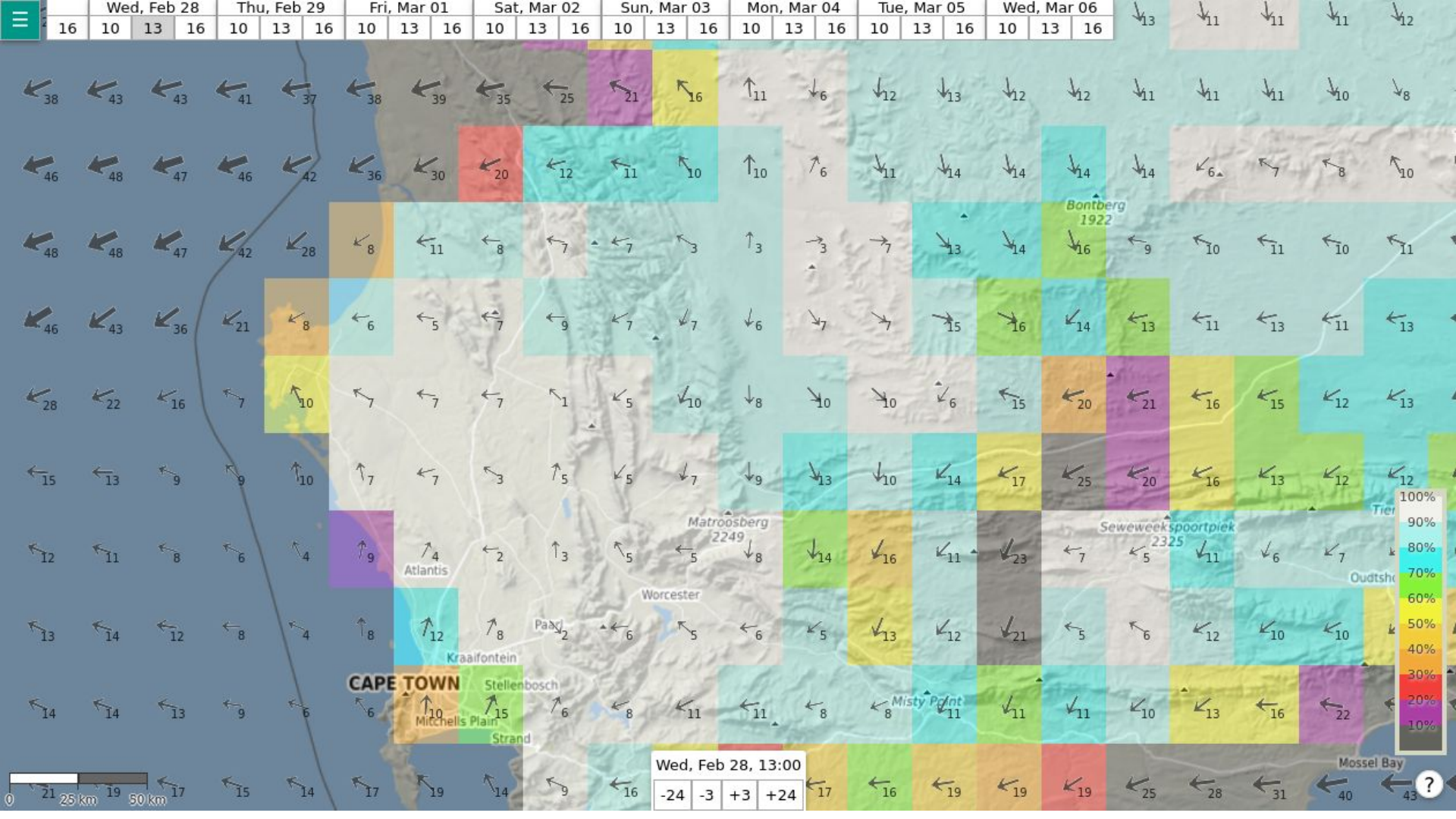

Cardezza
Montescheno
Villadossola
Cardezza
Seppiana
Viganella
Cuzzego
Terzo Fuori
Pallanzeno
Pizzo Castello
Pizzo della Rossola
Piedimulera
Pizzo Proman
2098
Castiglione
Pieve
Vergonte
Vogogna
Premosello-
Chiovenda
Calasca-
Castiglione
6
Cuzzago
Nibbio
Rumianca
Megolo Fondo
Anzola d'Ossola
Bannio
Albo
Pizzo Camino
Ornavasso
Corno di Scarpignano
Mazza dell'Inferno
Cima Cresta
Monte Massone

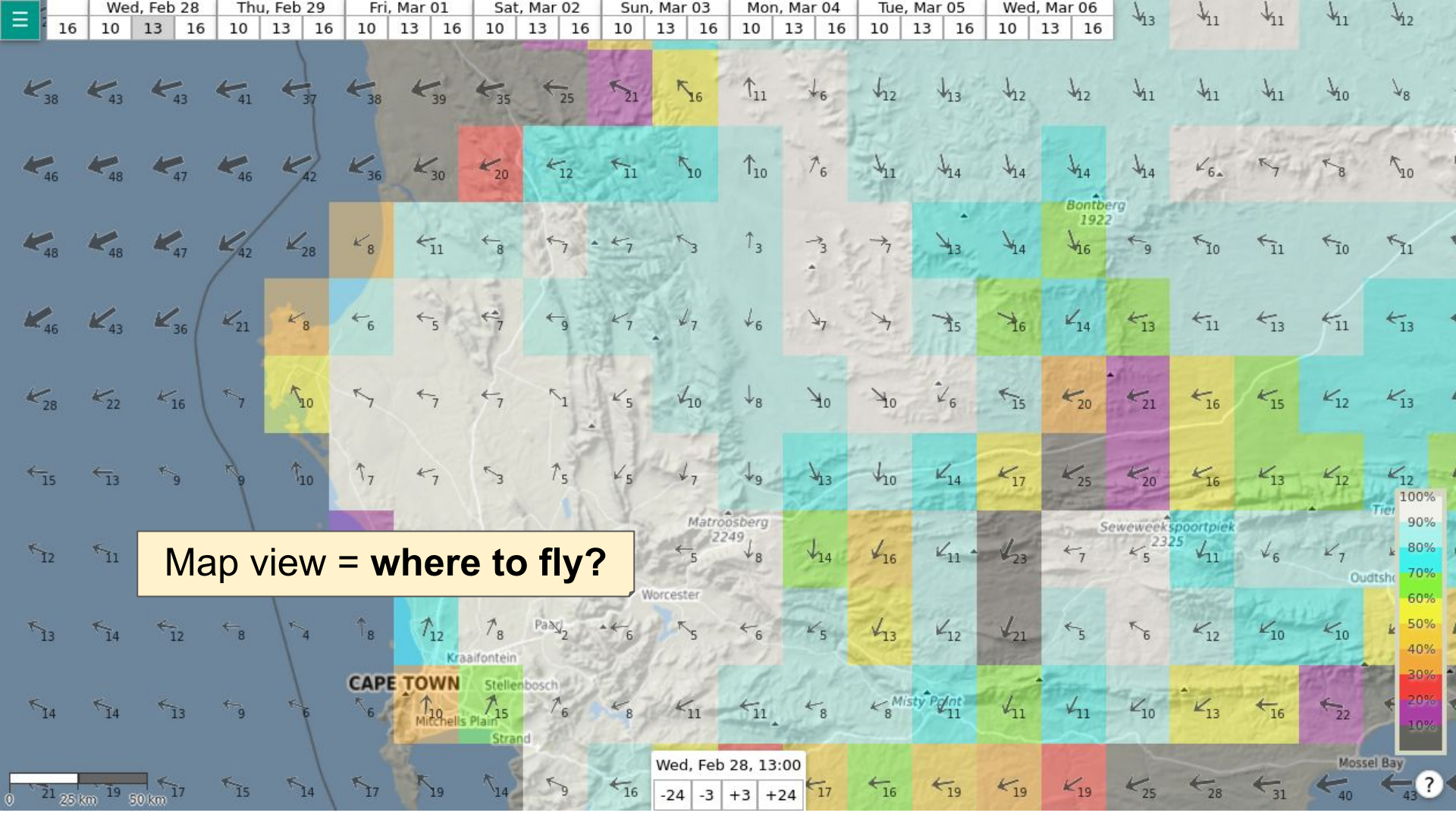

GFS predicts 6 km/h of NNE wind
Cardezza
Montescheno
Villadossola
Cardezza
Seppiana
Viganella
Cuzzego
Terzo Fuori
Pallanzeno
Pizzo Castello
Pizzo della Rossola
Piedimulera
Pizzo Proman 2098
Castiglione
Pieve Vergonte
Vogogna
Premosello-Chiovenda
Calasca-Castiglione
6
Cuzzago
Nibbio
Rumianca
Megolo Fondo
Anzola d'Ossola
Bannio
Albo
Pizzo Camino
Ornavasso
Corno di Scarpignano
Mazza dell'Inferno
Cima Cresta
Monte Massone
Cima di Capezzone

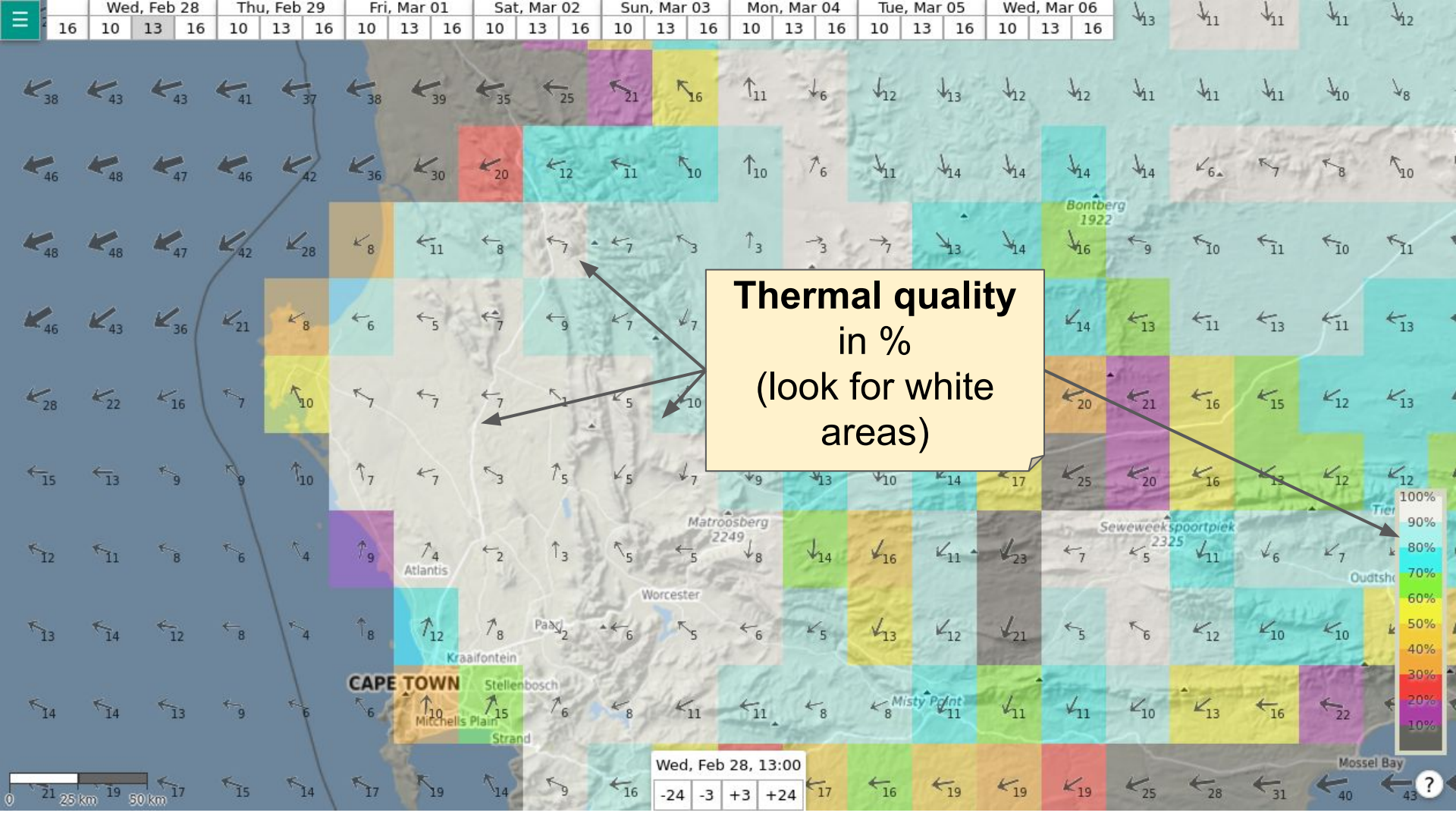

Cardezza
Villadossola
Cardezza
Seppiana
Viganella
Terzo Fuori
Pallanzeno
Pizzo Castello
Pizzo della Rossola
Piedimulera
Castiglione
Pizzo Proman
2098
Pieve
Vergonte
Vogogna
Premosello-
Chiovenda
Calasca-
Castiglione
Cuzzago
Nibbio
Megolo Fondo
Anzola d'Ossola
Bannio
Albo
Ornavasso
Corno di Scarpignano
Mazza dell'Inferno
Cima Cresta
Cima di Capezzone

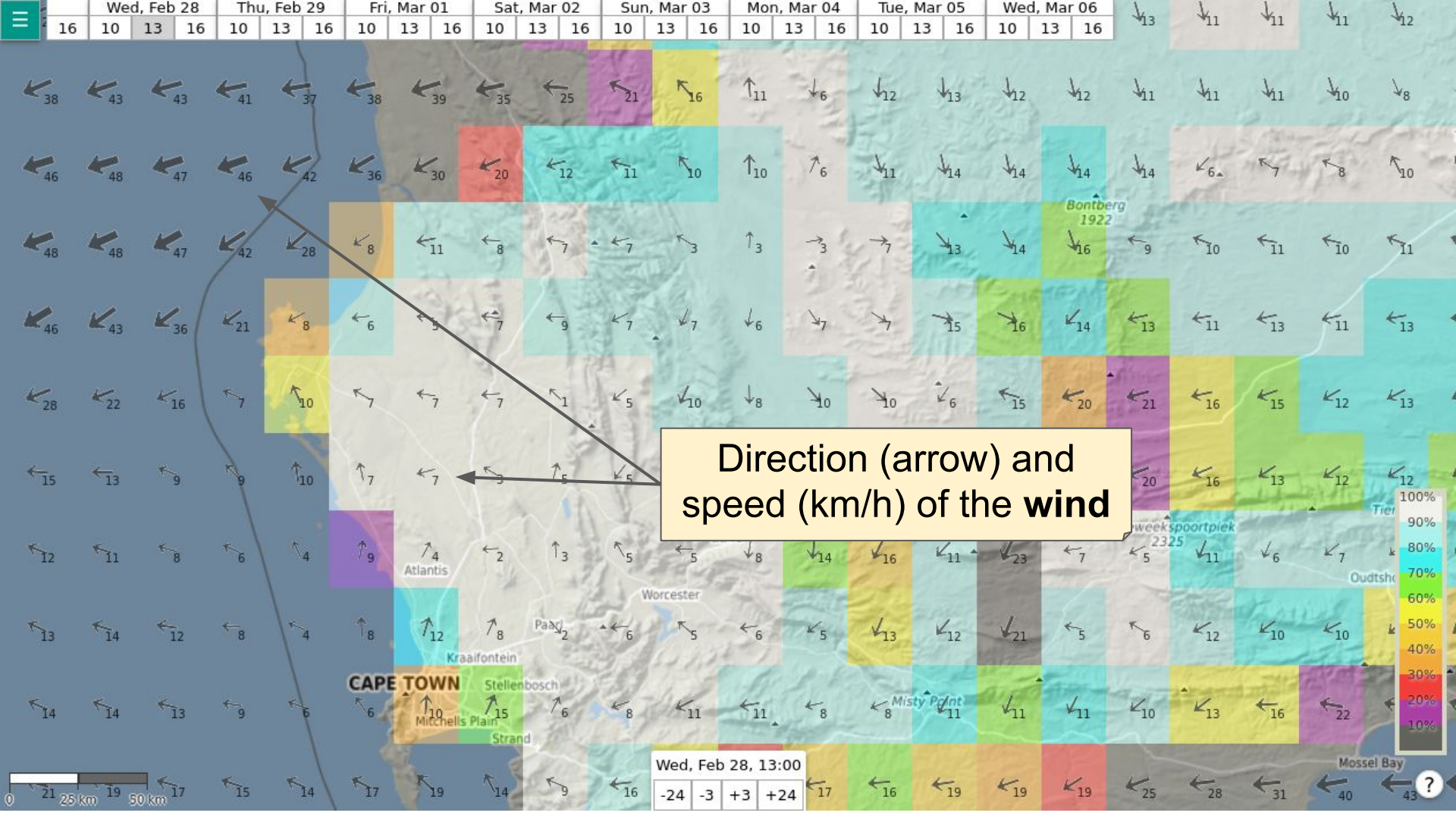

The wind predicted by WRF is impacted by the topography
Cardezza
Villadossola
Seppiana
Viganella
Terzo Fuori
Pallanzeno
Pizzo Castello
Piedimulera
Castiglione
Pieve Vergonte
Vogogna
Premosello-Chiovenda
Calasca-Castiglione
Cuzzago
Nibbio
Megolo Fondo
Anzola d'Ossola
Bannio
Pizzo Camino
Corno di Scarpignano
Ornavasso
Albo
Mazza dell'Inferno
Cima Cresta
Pizzo Proman 2098

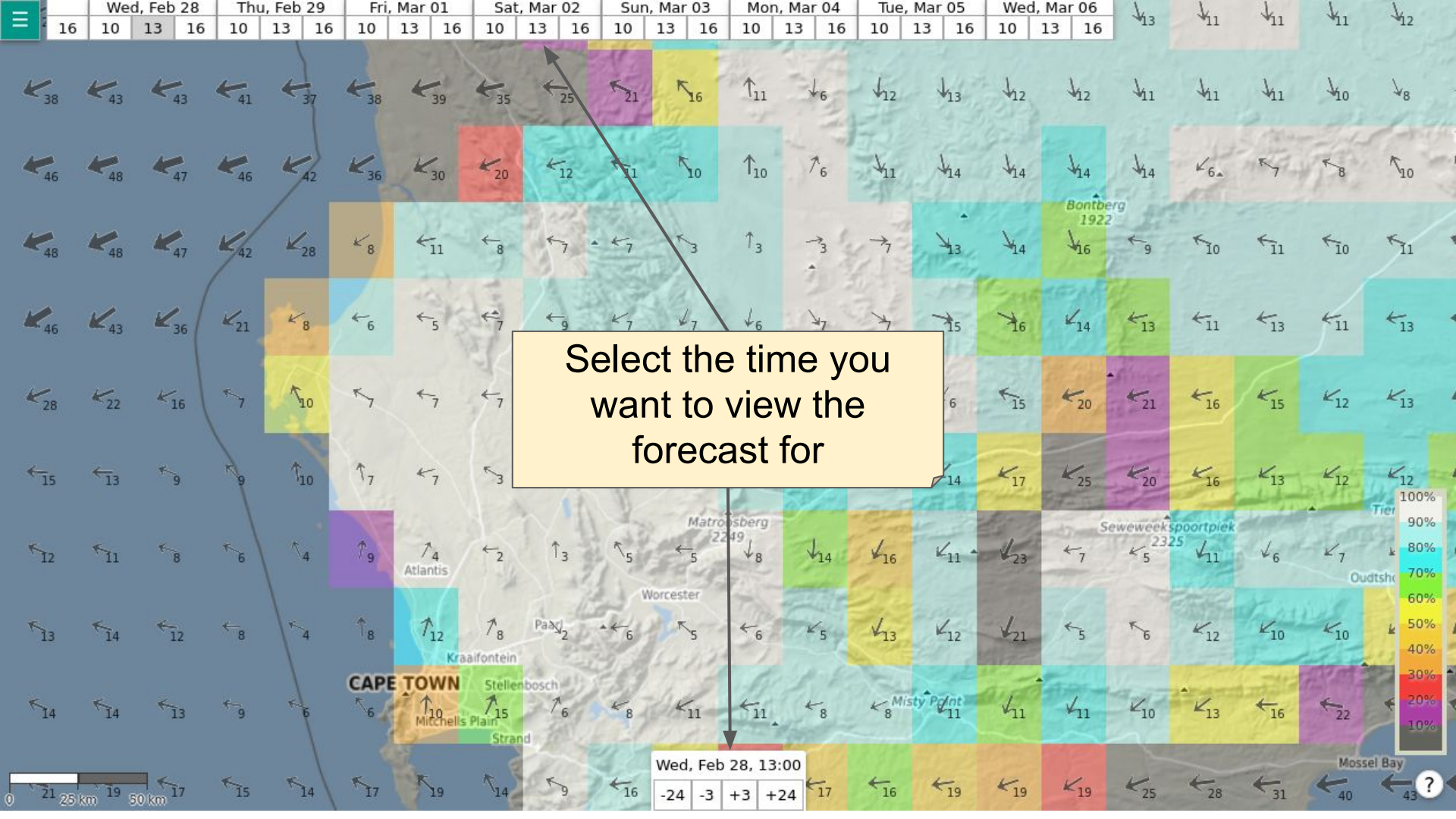
How do I know **where** and **when** I can do **thermal flying**?

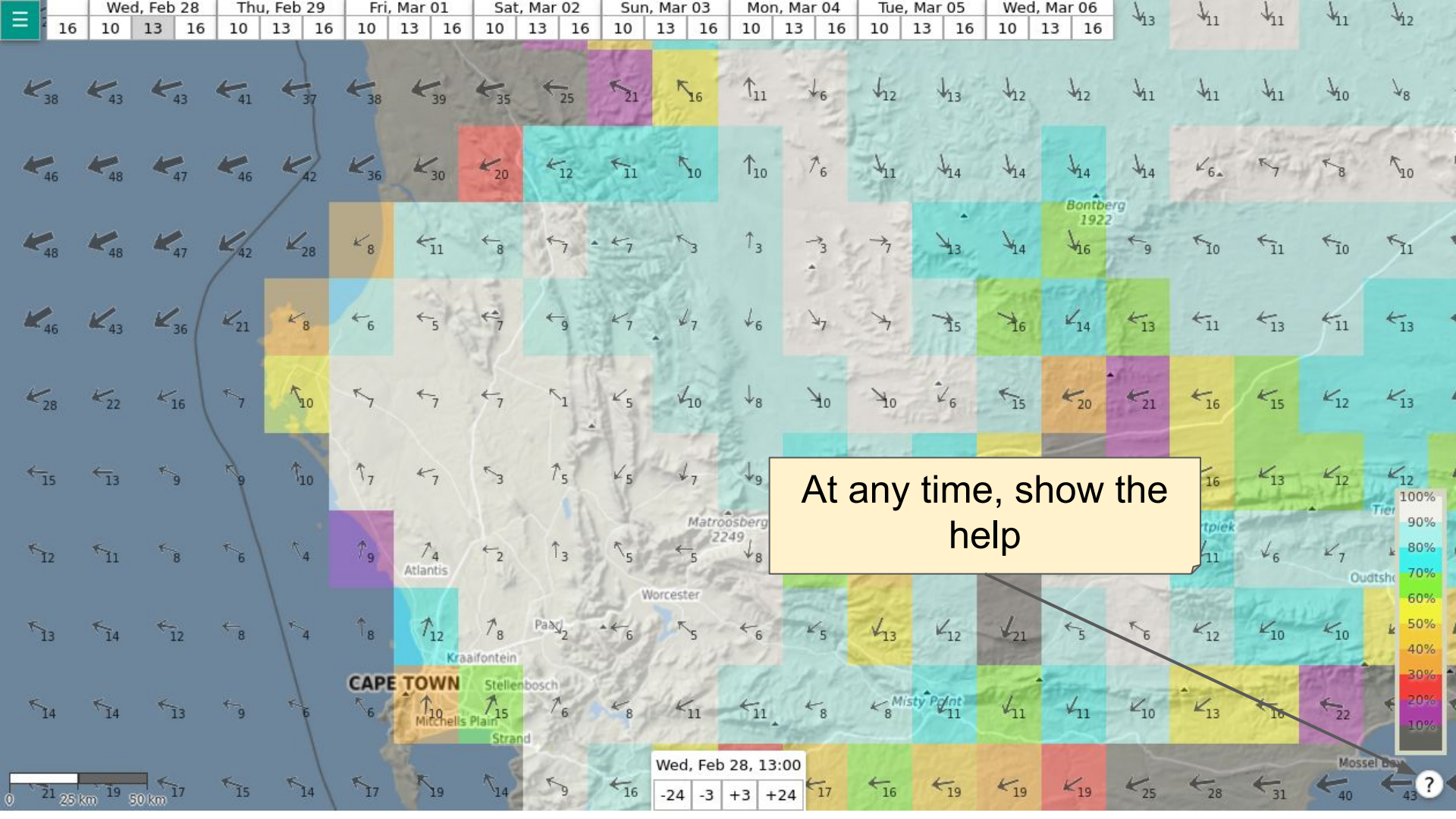

Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
Bontberg
1922
Matroosberg
2249
Seweweekspoortpiek
2325
Atlantis
Worcester
Paarl
Kraaifontein
CAPE TOWN
Stellenbosch
Mitchells Plain
Strand
Misty Point
Mossel Bay
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
Wed, Feb 28, 13:00
-24
-3
+3
+24
0
25 km
50 km


Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
Map view = where to fly?
Matroosberg 2249
Worcester
Paarl
Kraaifontein
CAPE TOWN
Stellenbosch
Mitchells Plain
Strand
Misty Point
Bontberg 1922
Seweweekspoortpiek 2325
Mossel Bay
Wed, Feb 28, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
25 km
50 km


Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
Thermal quality
in %
(look for white areas)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
Bontberg 1922
Matroosberg 2249
Seweweekspoortpiek 2325
Atlantis
Worcester
Kraaifontein
CAPE TOWN
Stellenbosch
Mitchells Plain
Strand
Misty Point
Mossel Bay
Wed, Feb 28, 13:00
-24
-3
+3
+24
0
25 km
50 km


Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
Direction (arrow) and speed (km/h) of the **wind**
CAPE TOWN
Atlantis
Worcester
Kraaifontein
Stellenbosch
Mitchells Plain
Strand
Misty Point
Mossel Bay
Bontberg 1922
Wed, Feb 28, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0
25 km
50 km


Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
Select the time you want to view the forecast for
Bontberg 1922
Matroosberg 2249
Seweweekspoortpiek 2325
Atlantis
Worcester
Kraaifontein
CAPE TOWN
Stellenbosch
Mitchells Plain
Strand
Misty Point
Mossel Bay
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
Wed, Feb 28, 13:00
-24
-3
+3
+24
0
25 km
50 km


Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
At any time, show the help
Bontberg 1922
Matroosberg 2249
Atlantis
Worcester
Kraaifontein
CAPE TOWN
Stellenbosch
Mitchells Plain
Strand
Misty Point
Mossel Bay
Wed, Feb 28, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
25 km
50 km

Soaringmeteo is a free weather forecast website developed by passionate pilots. Please consider making a donation to help us cover our cost.

What you see is the weather forecast for Feb 28, 13:00, from the model GFS (25 km) initialized at Feb 27, 13:00. The results of the GFS model are provided by the NOAA. The results are published every day around 07:00 and 19:00 CEST.

Use the top-left menu to select which information to display on the map (thermal quality, thermal velocity, wind speed and direction, etc.). You can also select a different weather forecast model, or a different area of the world (tip: bookmark the page after you selected your favorite model and geographical zone).

Currently, you see **the thermal quality**.

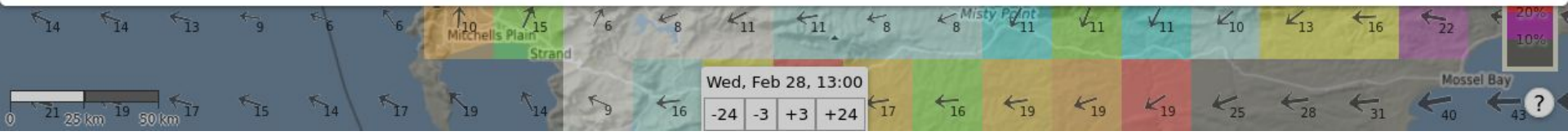
It indicates the potential for thermal flying, from 0% (poor thermals, or very strong wind) to 100% (strong, high thermals, weak wind). Look for white or blue areas (the full color scale is shown on the bottom right of the screen). The thermal quality takes into account the soaring layer depth, the ground warming, and the average wind speed within the boundary layer. Deep soaring layer, strong ground warming, and low wind speeds increase the value of this indicator.

You also see **the wind speed and direction at 300 m above the ground level**.

The wind direction is shown with an arrow. The wind flows in the direction of the arrow. For instance, an arrow that points to the right means that the wind comes from west and goes to east. The wind speed is show in km/h next to the arrow. You can hide the wind speed in the Settings (from the main menu).

Click on the map to see meteograms and sounding diagrams for that location. **At any point, click on the help button again to get an explanation about what you currently see.**

Something is not working as expected? Please file an issue. For other questions, send us an email.



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What you see is the weather forecast for Feb 28, 13:00, from the model GFS (25 km) initialized at Feb 27, 13:00. The results of the GFS model are provided by the NOAA. The results are published every day around 07:00 and 19:00 CEST.

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Model

Initialization time

Currently, you see **the thermal quality**.

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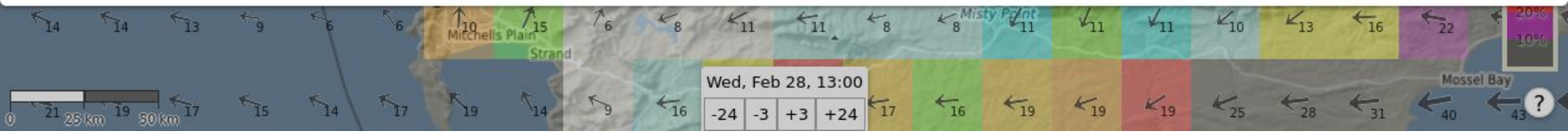

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What you see is the weather forecast for Feb 28, 13:00, from the model GFS (25 km) initialize… the GFS model are provided by the NOAA. The results are published every day around 07:00 and 19:00 CEST.

Use the top-left menu to select which information to display on the map (thermal quality, the… ction, etc.). You can also select a different weather forecast model, or a different area of the world (tip: bookmark the … ite model and geographical zone).

Explanation of the displayed layers

Currently, you see **the thermal quality**.

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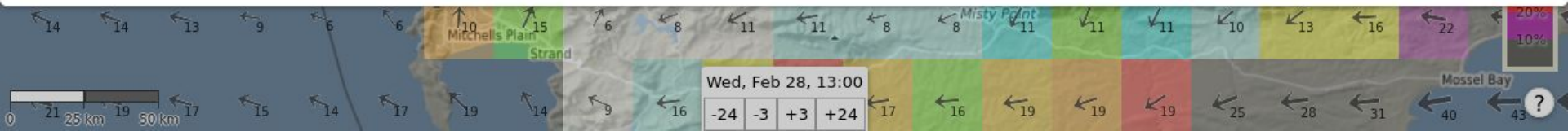
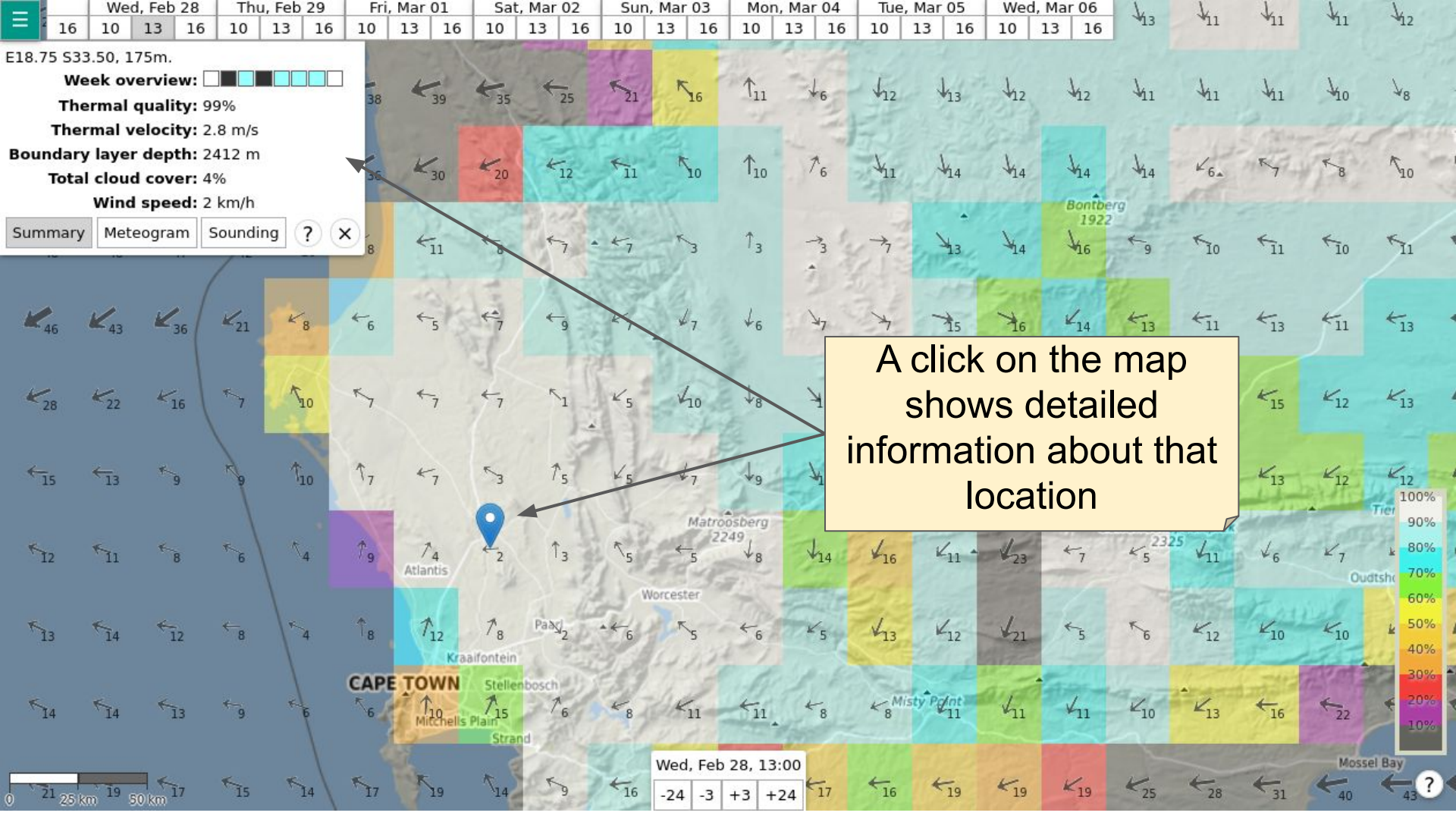
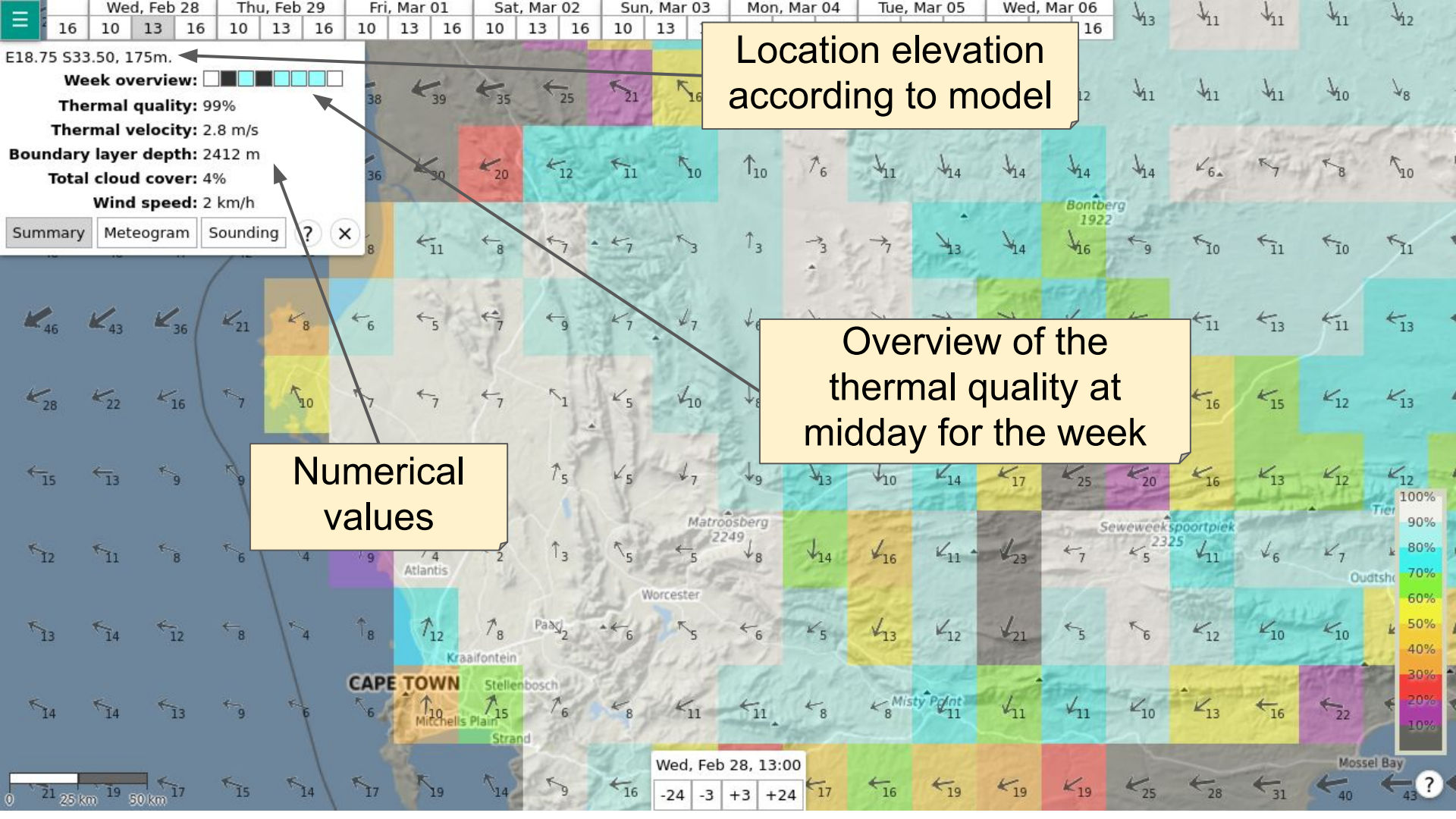
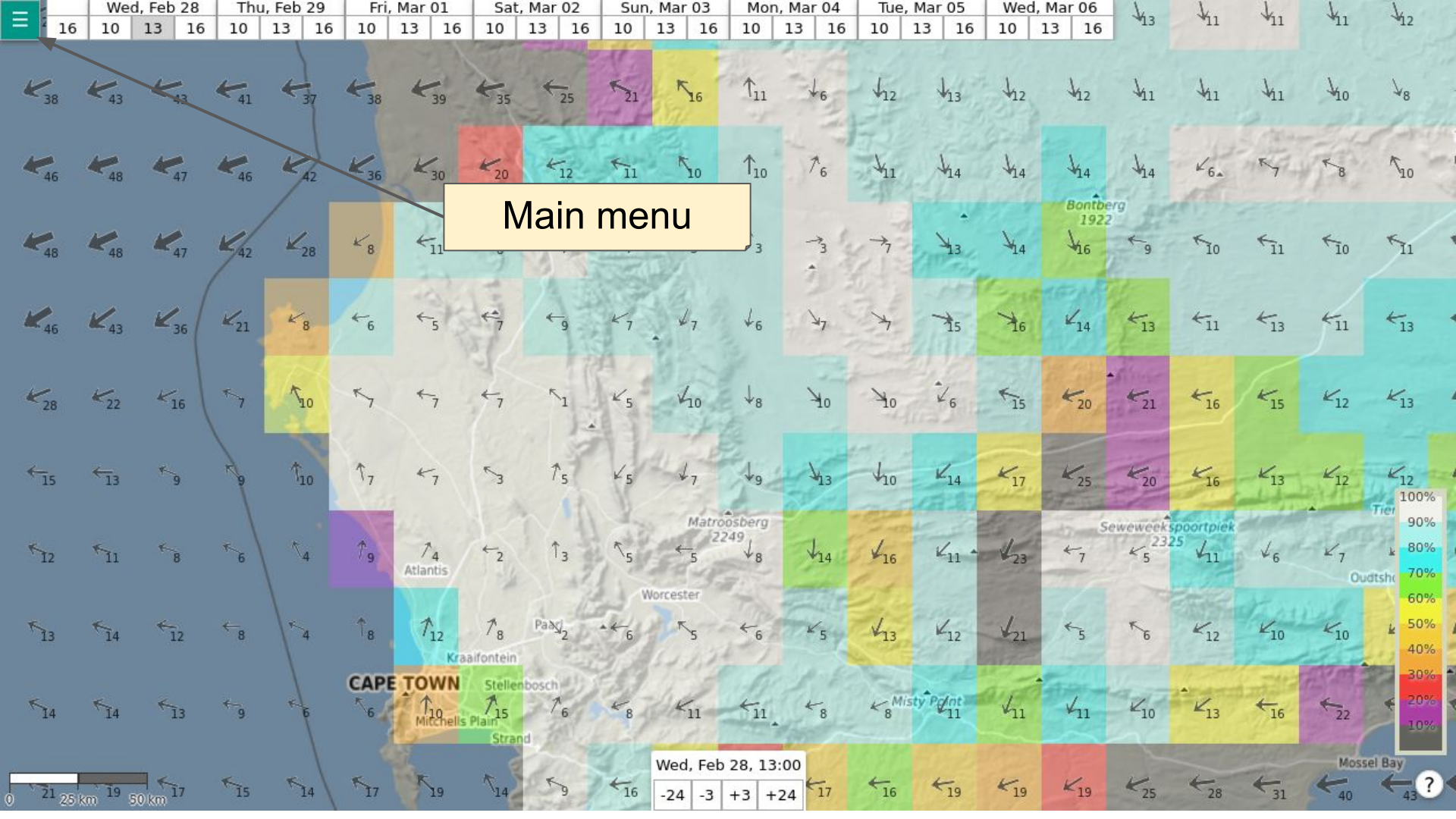
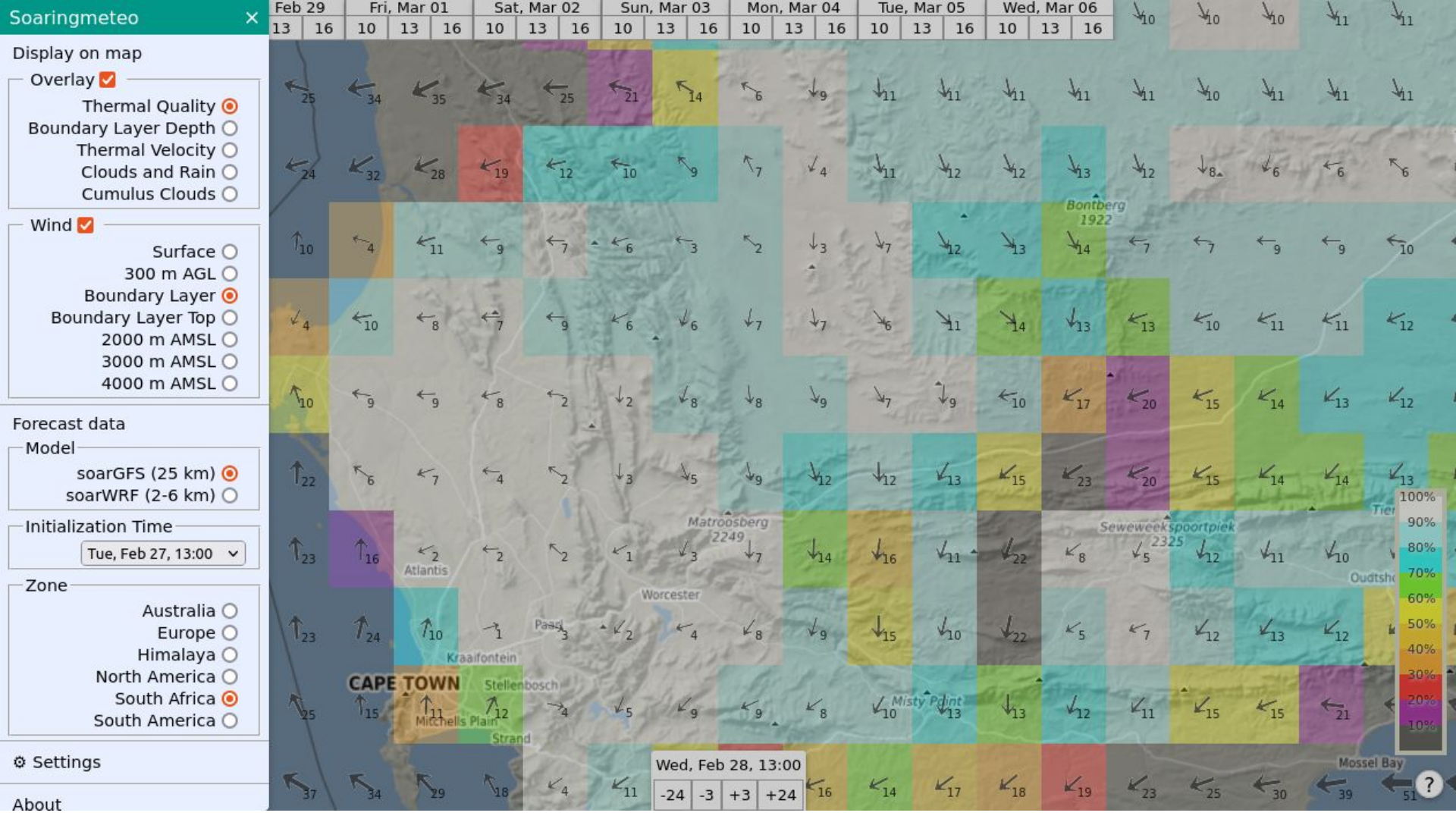
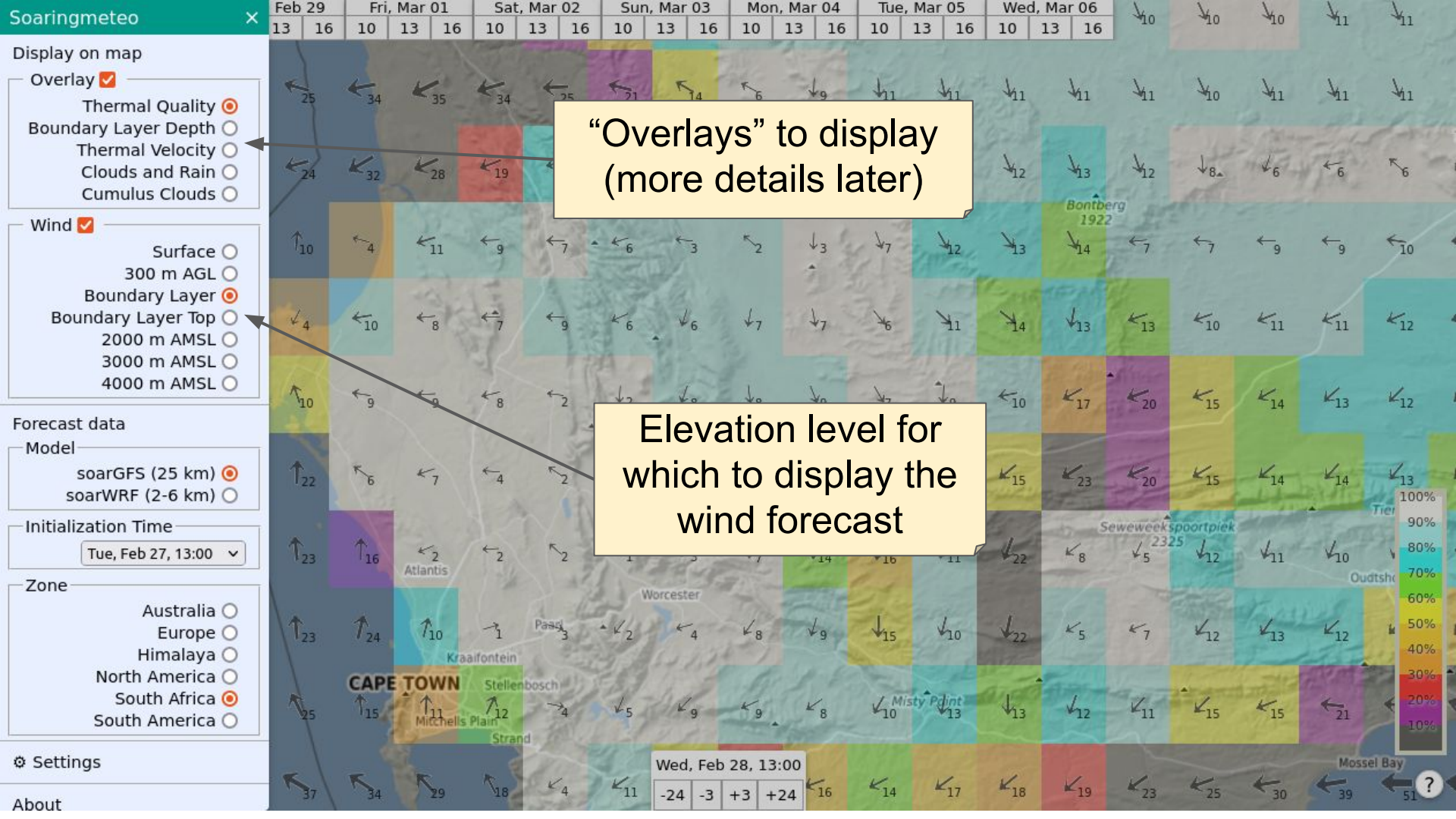


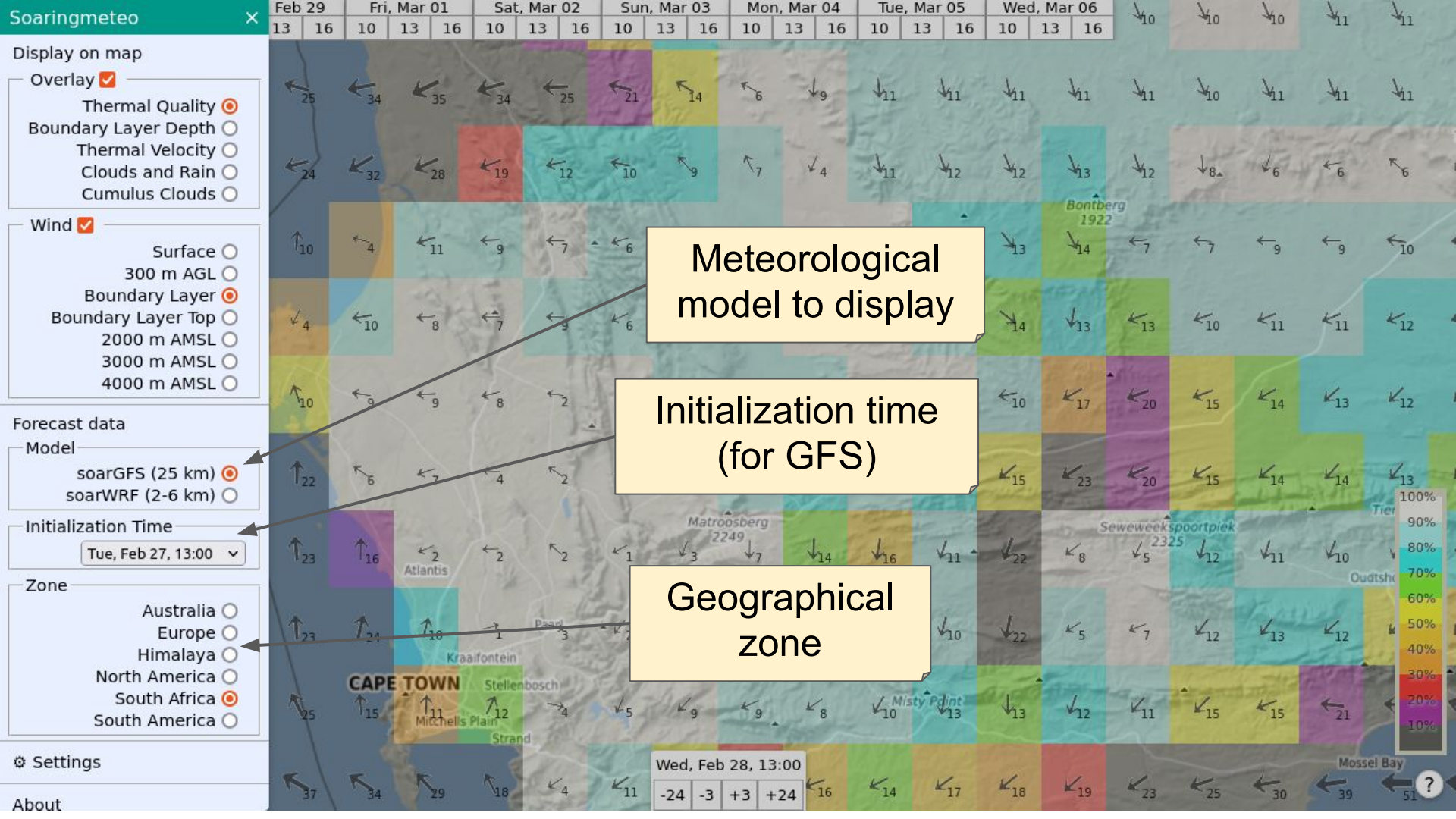

Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
E18.75 S33.50, 175m.
Week overview:
Thermal quality: 99%
Thermal velocity: 2.8 m/s
Boundary layer depth: 2412 m
Total cloud cover: 4%
Wind speed: 2 km/h
Summary
Meteogram
Sounding
A click on the map shows detailed information about that location
Bontberg 1922
Matroosberg 2249
Atlantis
Worcester
Paarl
Kraaifontein
CAPE TOWN
Stellenbosch
Mitchells Plain
Strand
Misty Point
Mossel Bay
Wed, Feb 28, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
25 km
50 km

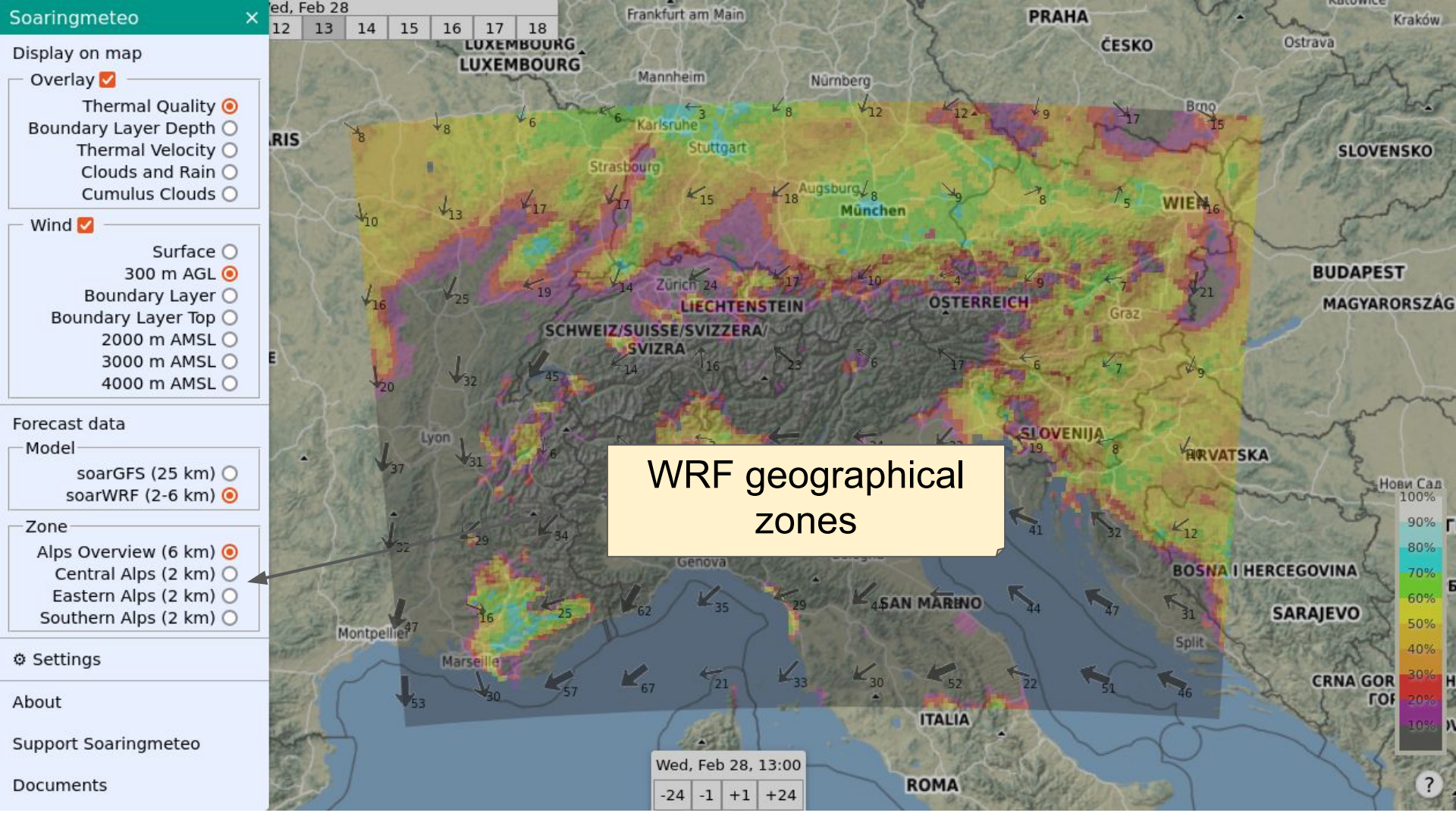

Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
E18.75 S33.50, 175m.
Week overview:
Thermal quality: 99%
Thermal velocity: 2.8 m/s
Boundary layer depth: 2412 m
Total cloud cover: 4%
Wind speed: 2 km/h
Summary
Meteogram
Sounding
Location elevation according to model
Overview of the thermal quality at midday for the week
Numerical values
Bontberg 1922
Matroosberg 2249
Seweweekspoortpiek 2325
Atlantis
Worcester
Paarl
Kraaifontein
CAPE TOWN
Stellenbosch
Mitchells Plain
Strand
Misty Point
Mossel Bay
Wed, Feb 28, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
25 km
50 km


Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
Main menu
Bontberg
1922
Matroosberg
2249
Seweweekspoortpiek
2325
Atlantis
Worcester
Paarl
Kraaifontein
CAPE TOWN
Stellenbosch
Mitchells Plain
Strand
Misty Point
Mossel Bay
Wed, Feb 28, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0
25 km
50 km

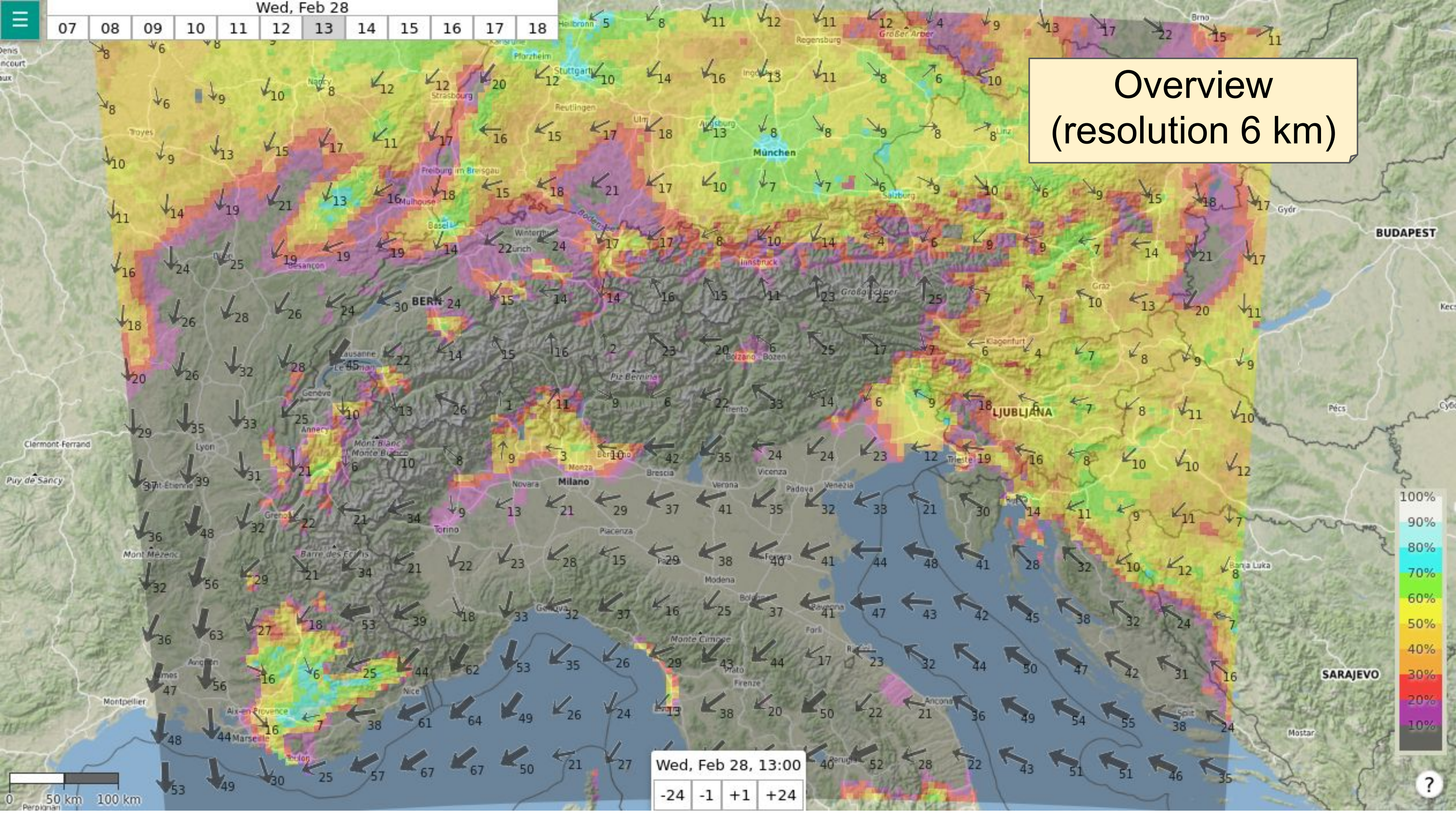

Soaringmeteo
Display on map
Overlay
Thermal Quality
Boundary Layer Depth
Thermal Velocity
Clouds and Rain
Cumulus Clouds
Wind
Surface
300 m AGL
Boundary Layer
Boundary Layer Top
2000 m AMSL
3000 m AMSL
4000 m AMSL
Forecast data
Model
soarGFS (25 km)
soarWRF (2-6 km)
Initialization Time
Tue, Feb 27, 13:00
Zone
Australia
Europe
Himalaya
North America
South Africa
South America
Settings
About
Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
Bontberg 1922
Matroosberg 2249
Seweweekspoortpiek 2325
Atlantis
Worcester
Paarl
Kraaifontein
CAPE TOWN
Stellenbosch
Mitchells Plain
Strand
Misty Point
Mossel Bay
Wed, Feb 28, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%

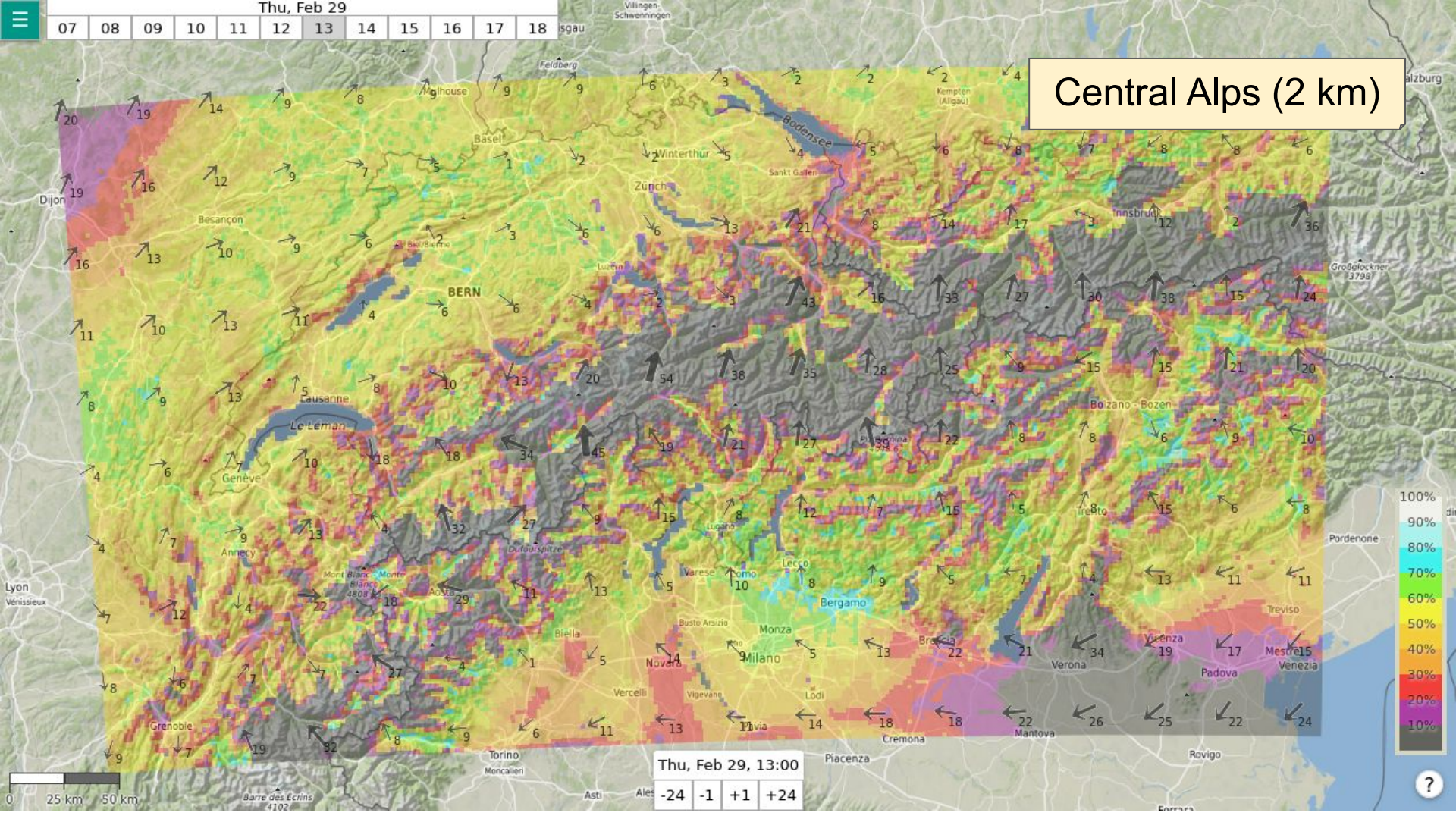

Soaringmeteo
Display on map
Overlay
Thermal Quality
Boundary Layer Depth
Thermal Velocity
Clouds and Rain
Cumulus Clouds
Wind
Surface
300 m AGL
Boundary Layer
Boundary Layer Top
2000 m AMSL
3000 m AMSL
4000 m AMSL
Forecast data
Model
soarGFS (25 km)
soarWRF (2-6 km)
Initialization Time
Tue, Feb 27, 13:00
Zone
Australia
Europe
Himalaya
North America
South Africa
South America
Settings
About
Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
"Overlays" to display (more details later)
Elevation level for which to display the wind forecast
Bontberg 1922
Seweweekspoortpiek 2325
Worcester
Atlantis
Kraaifontein
CAPE TOWN
Stellenbosch
Mitchells Plain
Strand
Misty Point
Mossel Bay
Wed, Feb 28, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%

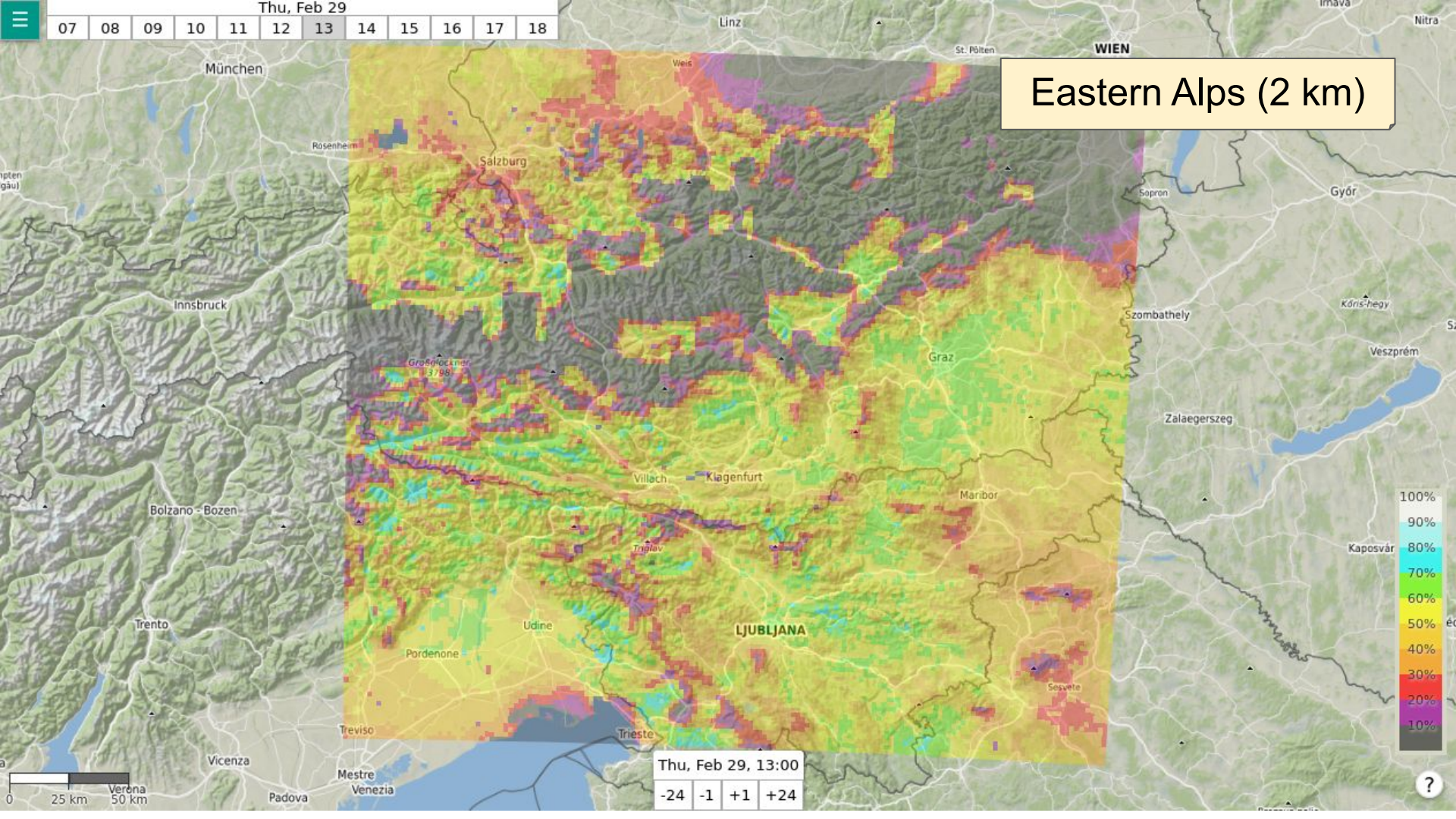

Soaringmeteo
Display on map
Overlay
Thermal Quality
Boundary Layer Depth
Thermal Velocity
Clouds and Rain
Cumulus Clouds
Wind
Surface
300 m AGL
Boundary Layer
Boundary Layer Top
2000 m AMSL
3000 m AMSL
4000 m AMSL
Forecast data
Model
soarGFS (25 km)
soarWRF (2-6 km)
Initialization Time
Tue, Feb 27, 13:00
Zone
Australia
Europe
Himalaya
North America
South Africa
South America
Settings
About
Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
Meteorological model to display
Initialization time (for GFS)
Geographical zone
CAPE TOWN
Bontberg 1922
Matroosberg 2249
Seweweekspoortpiek 2325
Wed, Feb 28, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%

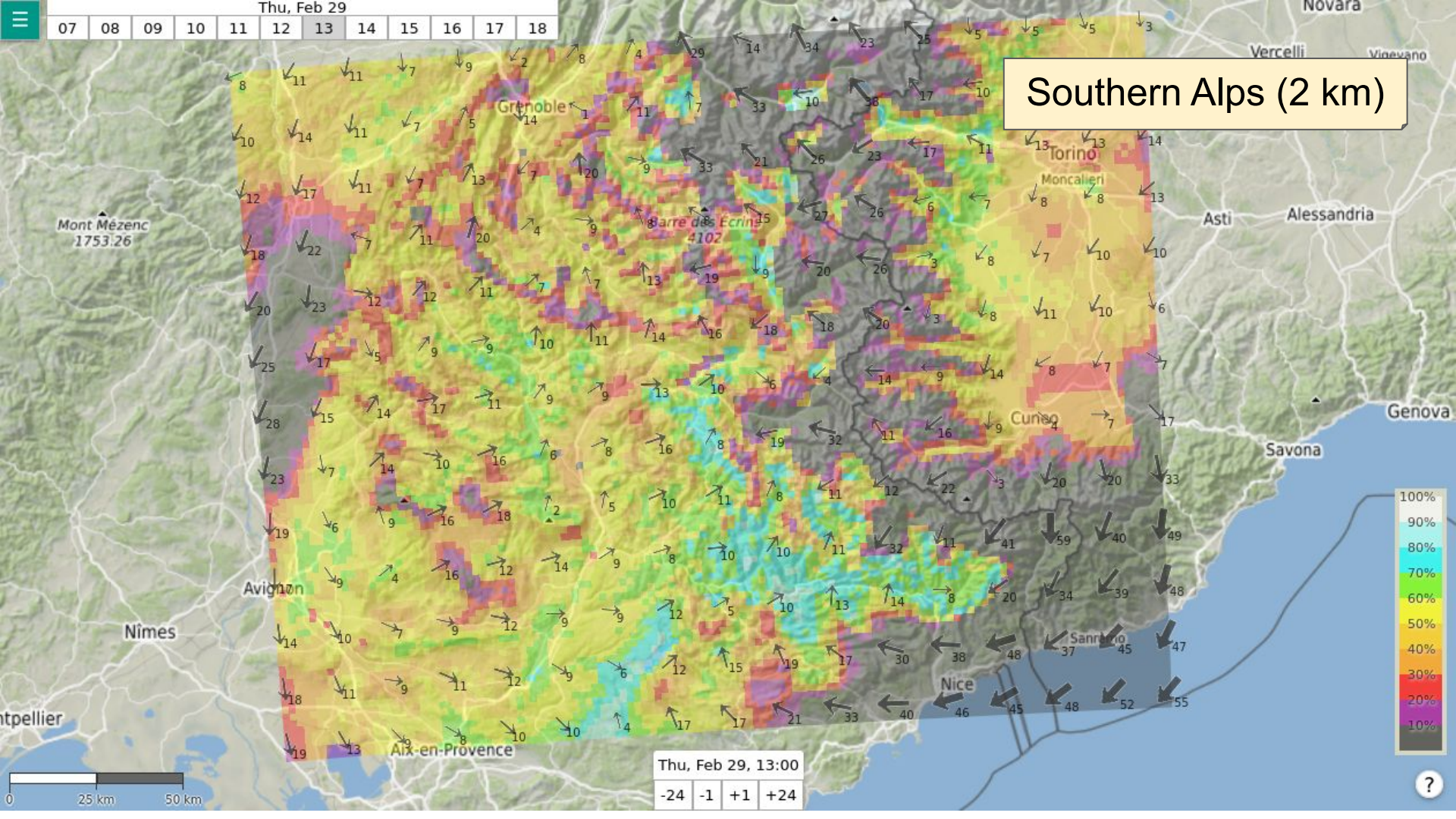

Soaringmeteo
Display on map
Overlay
Thermal Quality
Boundary Layer Depth
Thermal Velocity
Clouds and Rain
Cumulus Clouds
Wind
Surface
300 m AGL
Boundary Layer
Boundary Layer Top
2000 m AMSL
3000 m AMSL
4000 m AMSL
Forecast data
Model
soarGFS (25 km)
soarWRF (2-6 km)
Zone
Alps Overview (6 km)
Central Alps (2 km)
Eastern Alps (2 km)
Southern Alps (2 km)
Settings
About
Support Soaringmeteo
Documents
Wed, Feb 28
12 13 14 15 16 17 18
WRF geographical zones
Wed, Feb 28, 13:00
-24 -1 +1 +24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
LUXEMBOURG
Frankfurt am Main
PRAHA
ČESKO
Ostrava
Kraków
Mannheim
Nürnberg
Karlsruhe
Stuttgart
Strasbourg
Augsburg
München
Brno
SLOVENSKO
WIEN
BUDAPEST
MAGYARORSZÁG
Zürich
LIECHTENSTEIN
ÖSTERREICH
Graz
SCHWEIZ/SUISSE/SVIZZERA/
SVIZRA
Lyon
SLOVENIJA
HRVATSKA
Нови Сад
Genova
BOSNA I HERCEGOVINA
SAN MARINO
SARAJEVO
Montpellier
Marseille
Split
CRNA GOR
ITALIA
ROMA

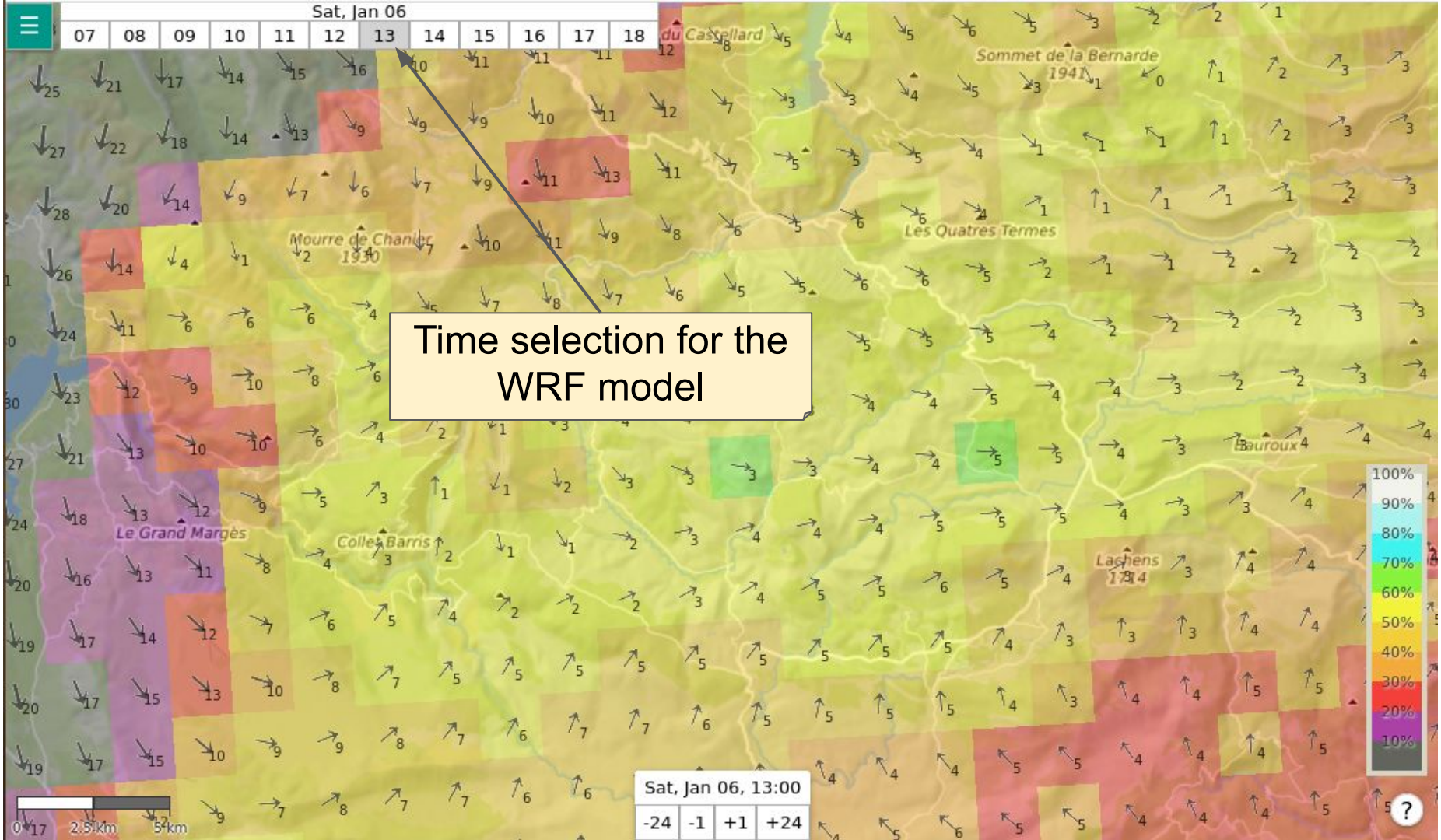
Overview (resolution 6 km)




Central Alps (2 km)
Thu, Feb 29
07 08 09 10 11 12 13 14 15 16 17 18
Thu, Feb 29, 13:00
-24 -1 +1 +24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0 25 km 50 km
BERN
Zürich
Basel
Winterthur
Bodensee
Innsbruck
Bolzano - Bozen
Lausanne
Le Léman
Genève
Annecy
Grenoble
Lyon
Besançon
Dijon
Milano
Bergamo
Verona
Padova
Venezia
Mestre
Cremona
Mantova
Piacenza
Torino
Monza
Lecco
Como
Varese
Lugano
Pordenone
Treviso
Vicenza
Rovigo
Ferrara
Asti
Vercelli
Novara
Biella
Lodi
Vigevano
Busto Arsizio
Dufourspitze
Mont Blanc
Barre des Écrins
Großglockner
Kempten (Allgäu)
Sankt Gallen
Luzern
Feldberg
Villingen-Schwenningen
Mülhouse


Thu, Feb 29
07 08 09 10 11 12 13 14 15 16 17 18
Eastern Alps (2 km)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
Thu, Feb 29, 13:00
-24 -1 +1 +24
0 25 km 50 km
München
Salzburg
Innsbruck
Bolzano - Bozen
Trento
Graz
Villach
Klagenfurt
Maribor
LJUBLJANA
Udine
Pordenone
Treviso
Trieste
Vicenza
Mestre
Venezia
Padova
Verona
Linz
WIEN
St. Pölten
Sopron
Győr
Szombathely
Zalaegerszeg
Veszprém
Kaposvár
Nitra


Thu, Feb 29
07 08 09 10 11 12 13 14 15 16 17 18
Southern Alps (2 km)
Grenoble
Torino
Moncalieri
Asti
Alessandria
Novara
Vercelli
Vigevano
Cuneo
Savona
Genova
Sanremo
Nice
Avignon
Nîmes
Aix-en-Provence
Mont Mézenc
1753.26
Barre des Ecrins
4102
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
Thu, Feb 29, 13:00
-24 -1 +1 +24
0
25 km
50 km


Sat, Jan 06
07
08
09
10
11
12
13
14
15
16
17
18
Time selection for the WRF model
Sat, Jan 06, 13:00
-24
-1
+1
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
2.5 km
5 km

The **thermal quality** indicator is easy to **read**

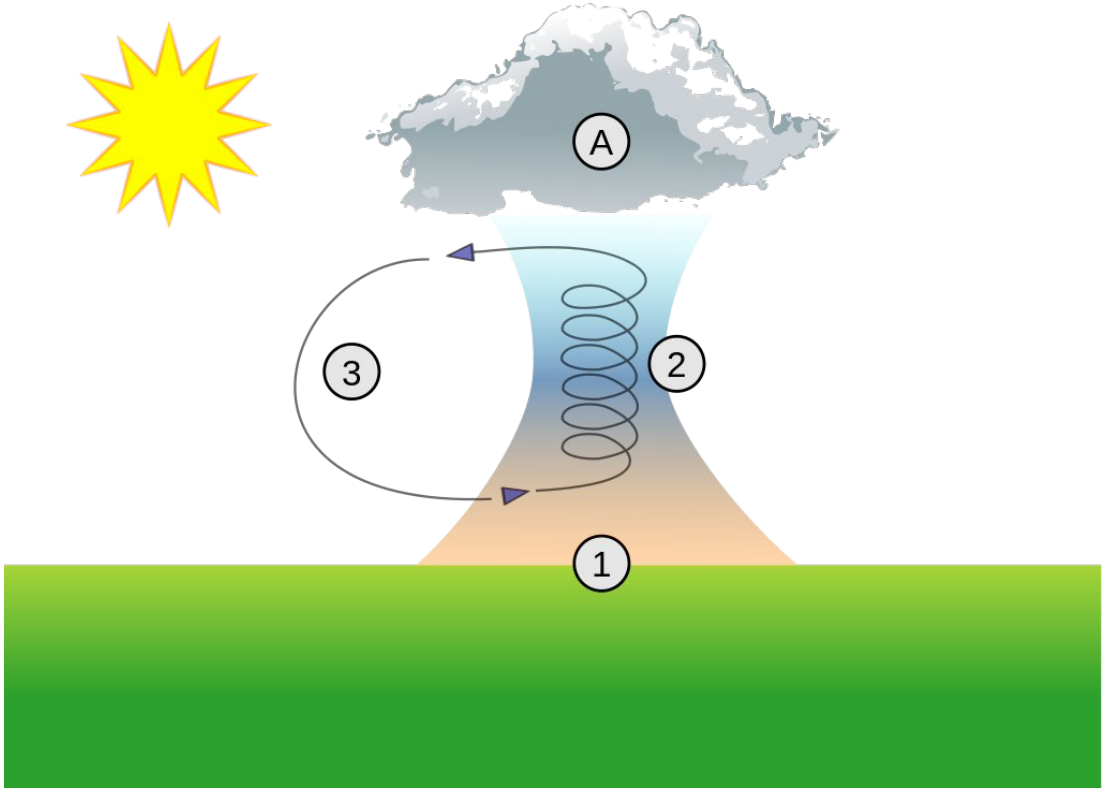
However, like any synthetic indicator, it **simplifies** information

Two different situations may have the **same value**, e.g. 82%

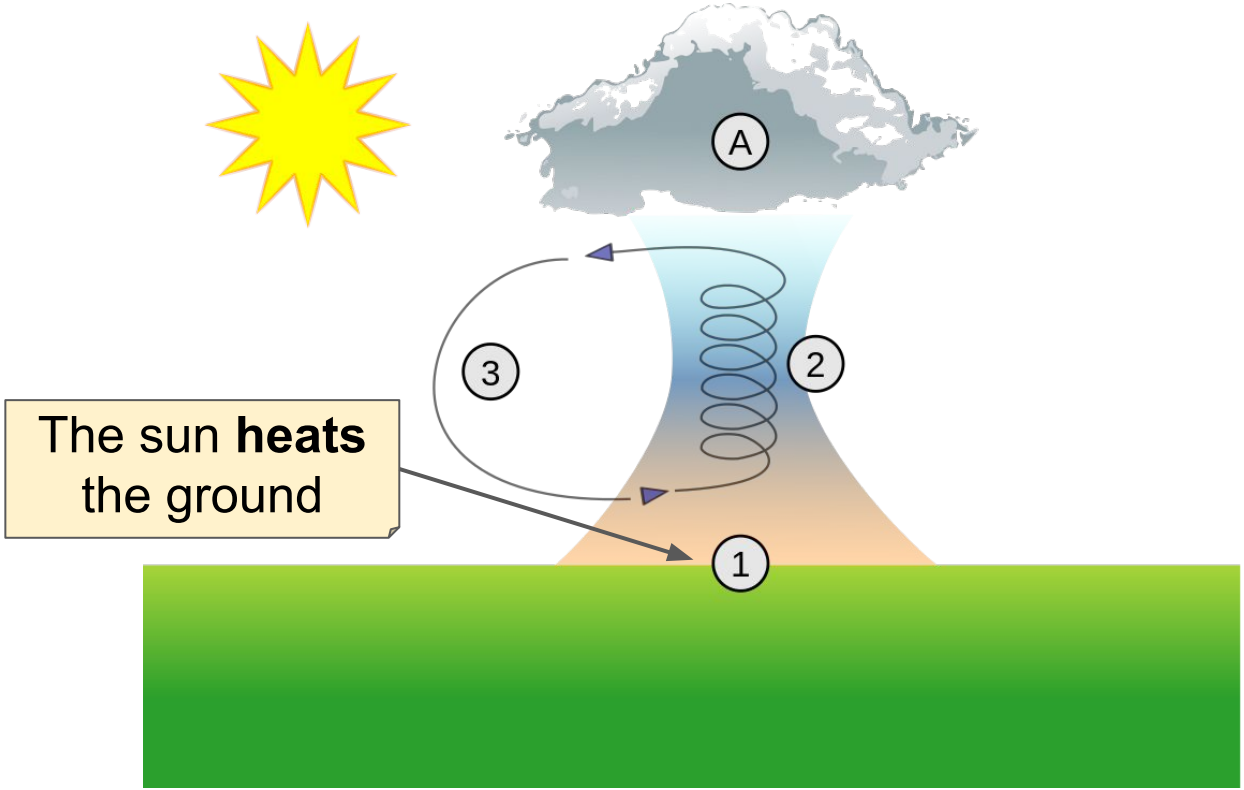
How to refine our interpretation of the forecast?

Which conditions are good for thermal flying?

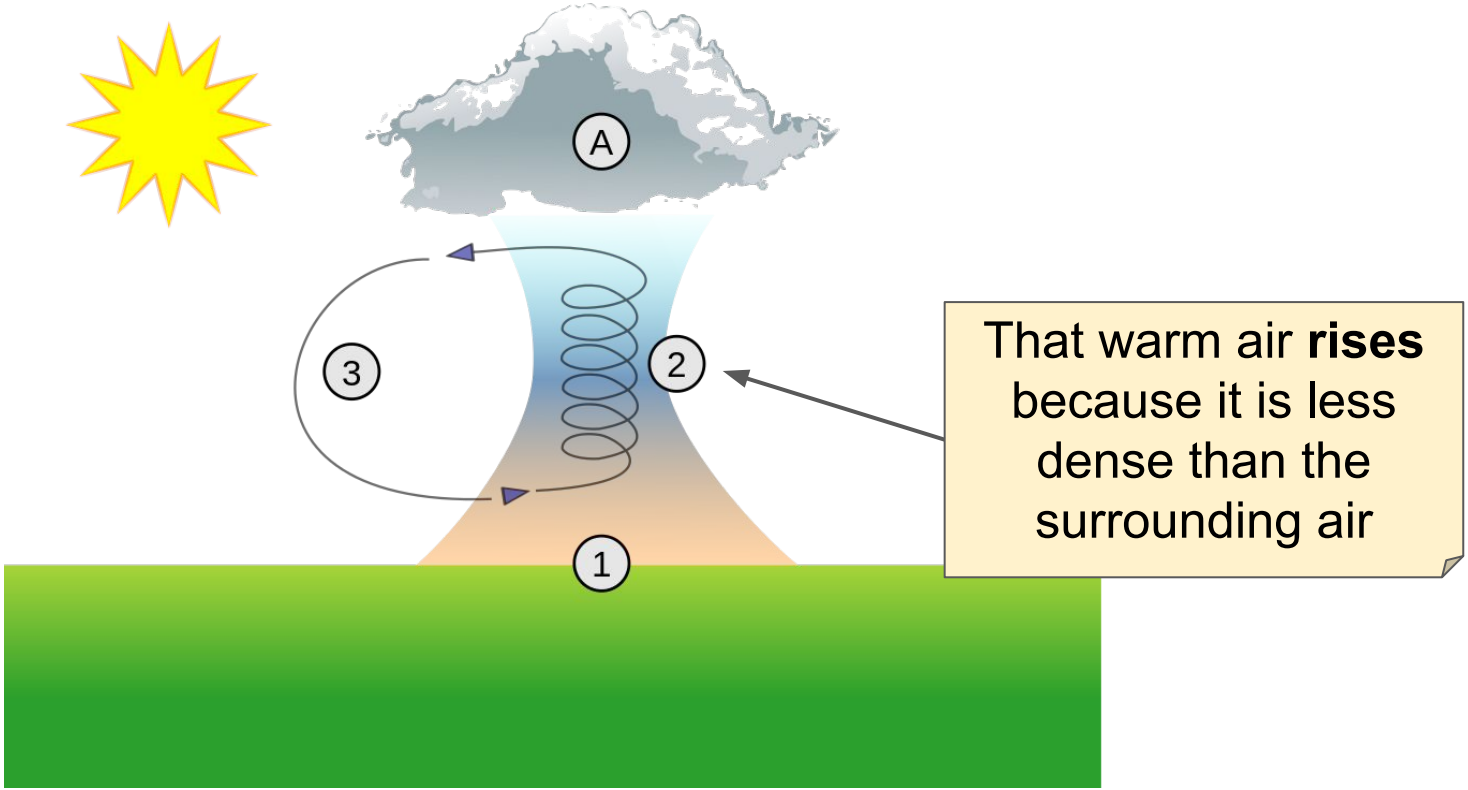
What is a thermal?



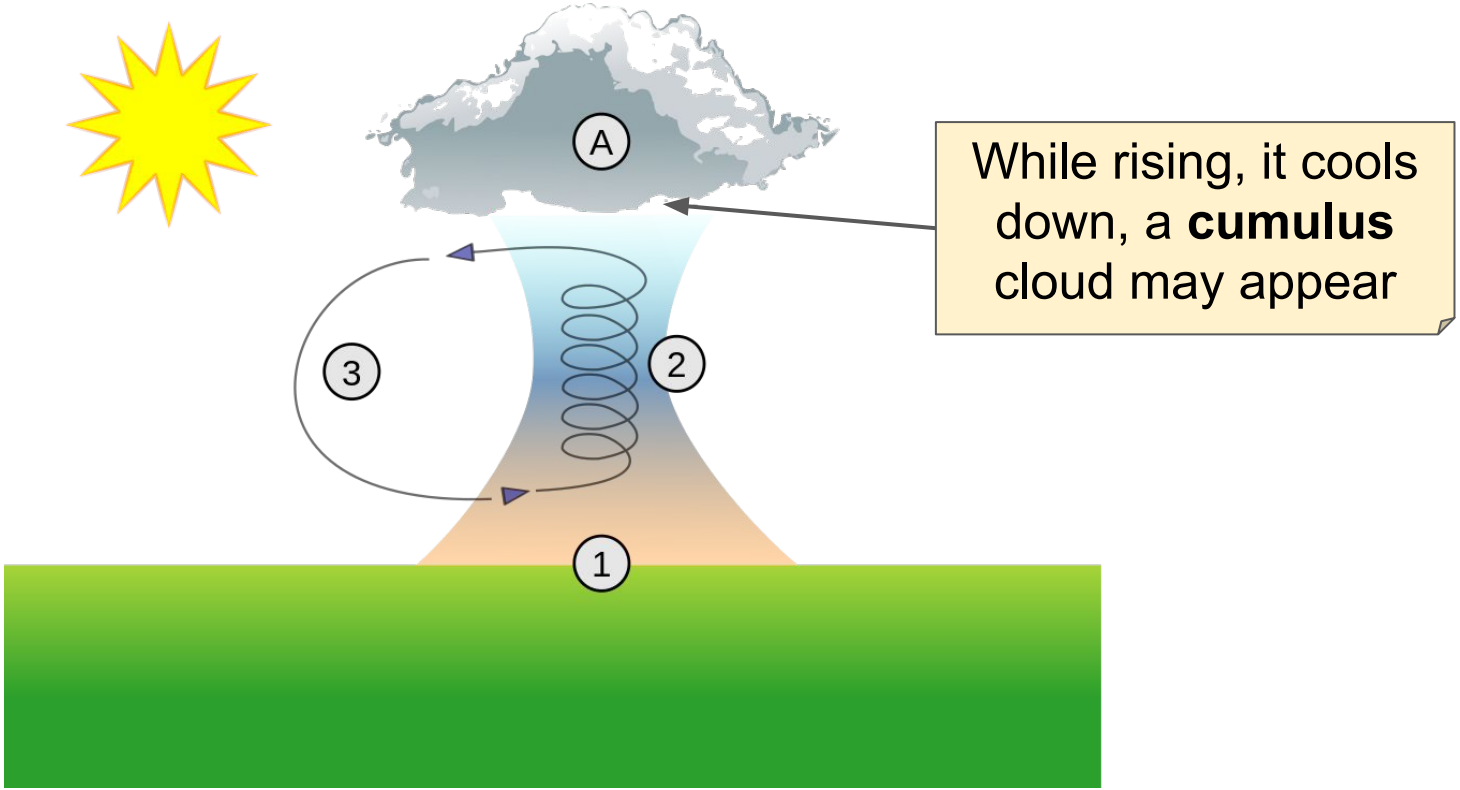
What is a thermal?



What is a thermal?

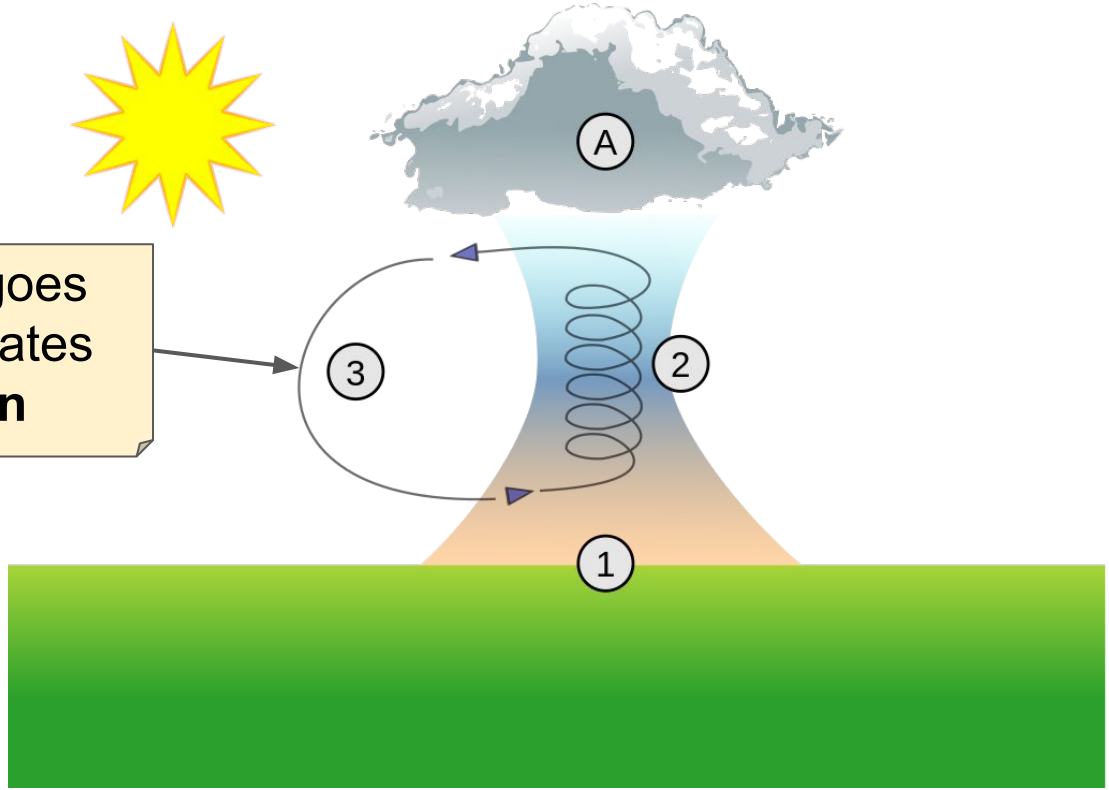


What is a thermal?

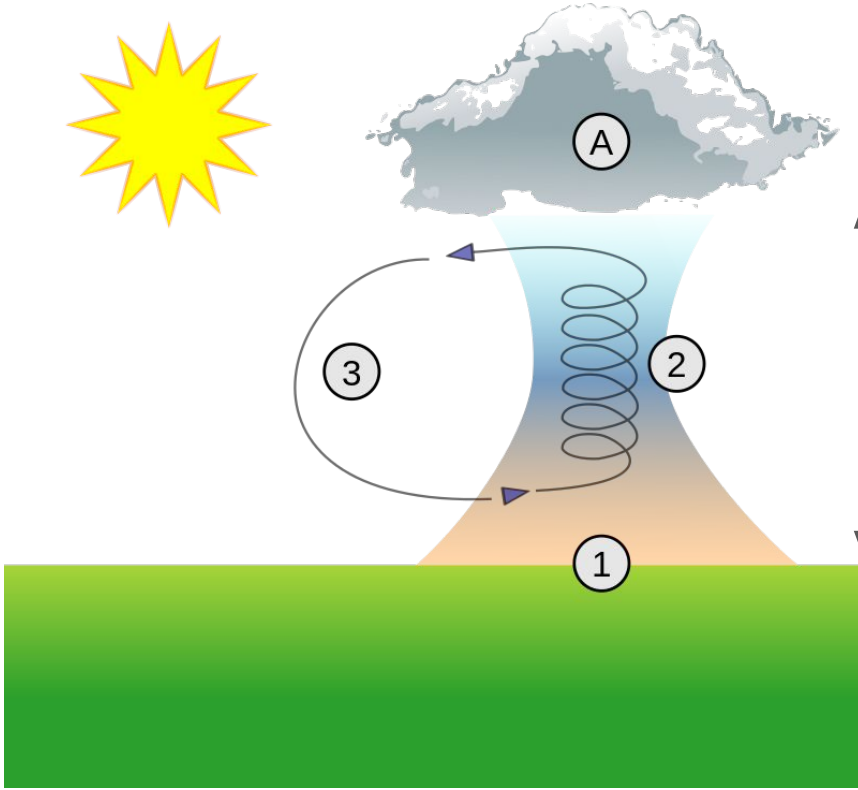


What is a thermal?

The cold air goes down and creates **convection**



What is a thermal?



The layer between the ground and the top of thermals is the **boundary layer**. We fly there.

Which conditions are good for thermal flying?

Which conditions are good for thermal flying?

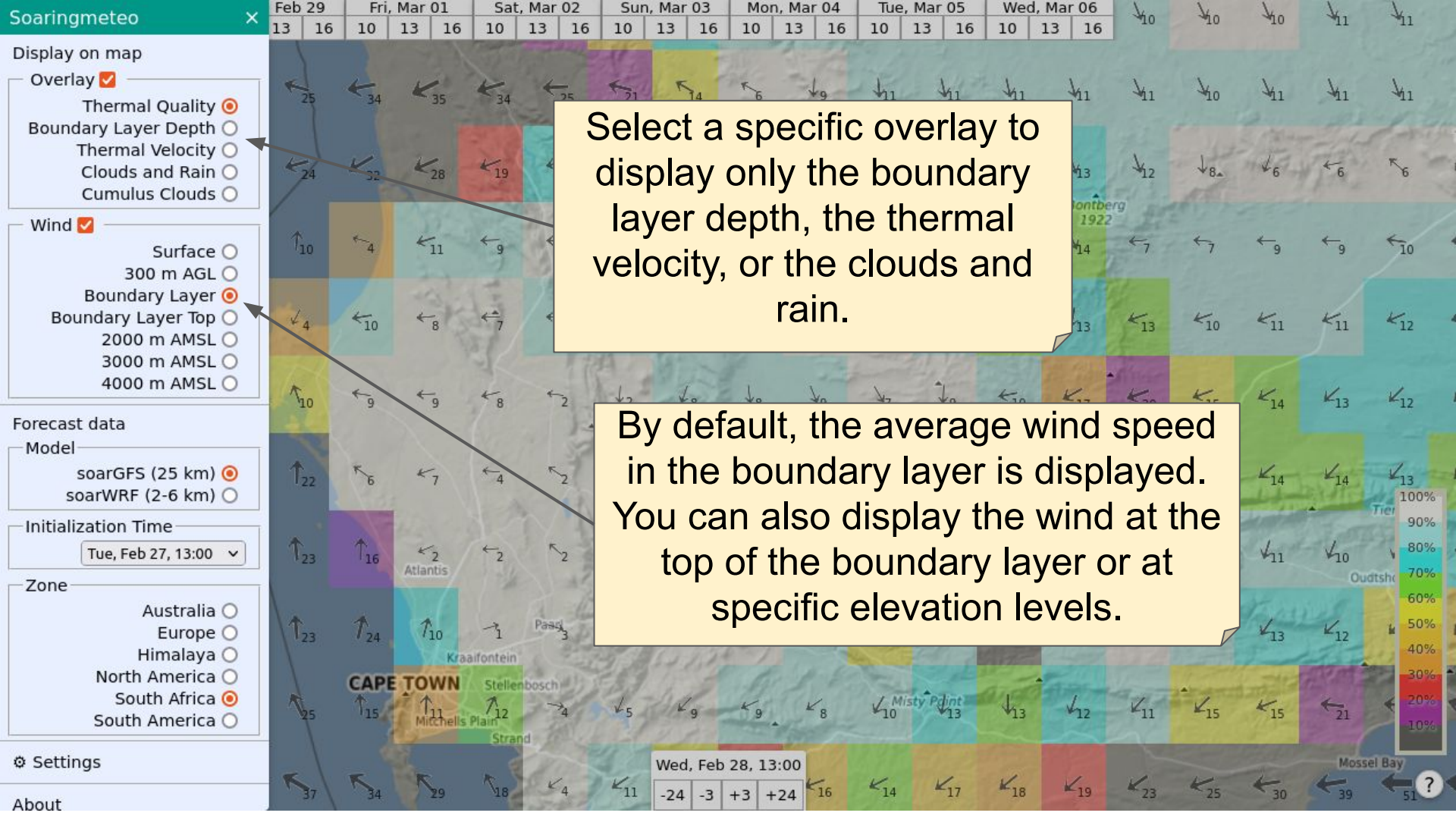
- strong ground heating
- high thermal ceiling
- little wind*

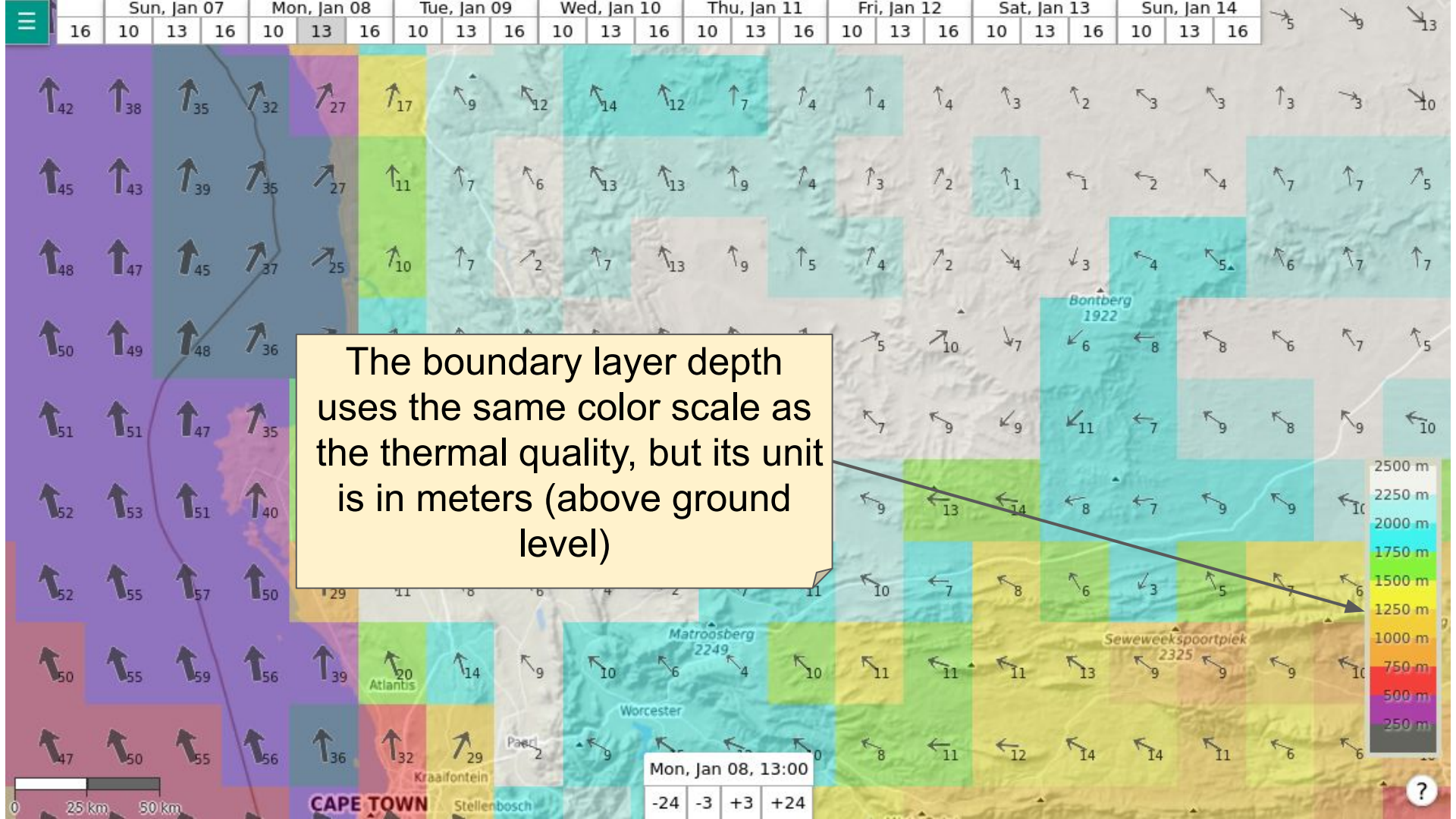
* wind makes it difficult to work out thermals, and in case of paragliding in the mountains a wind speed of 20 km/h or more produces rotors that can be dangerous. That point may not apply to sailplanes, or to paragliding in the flatlands.

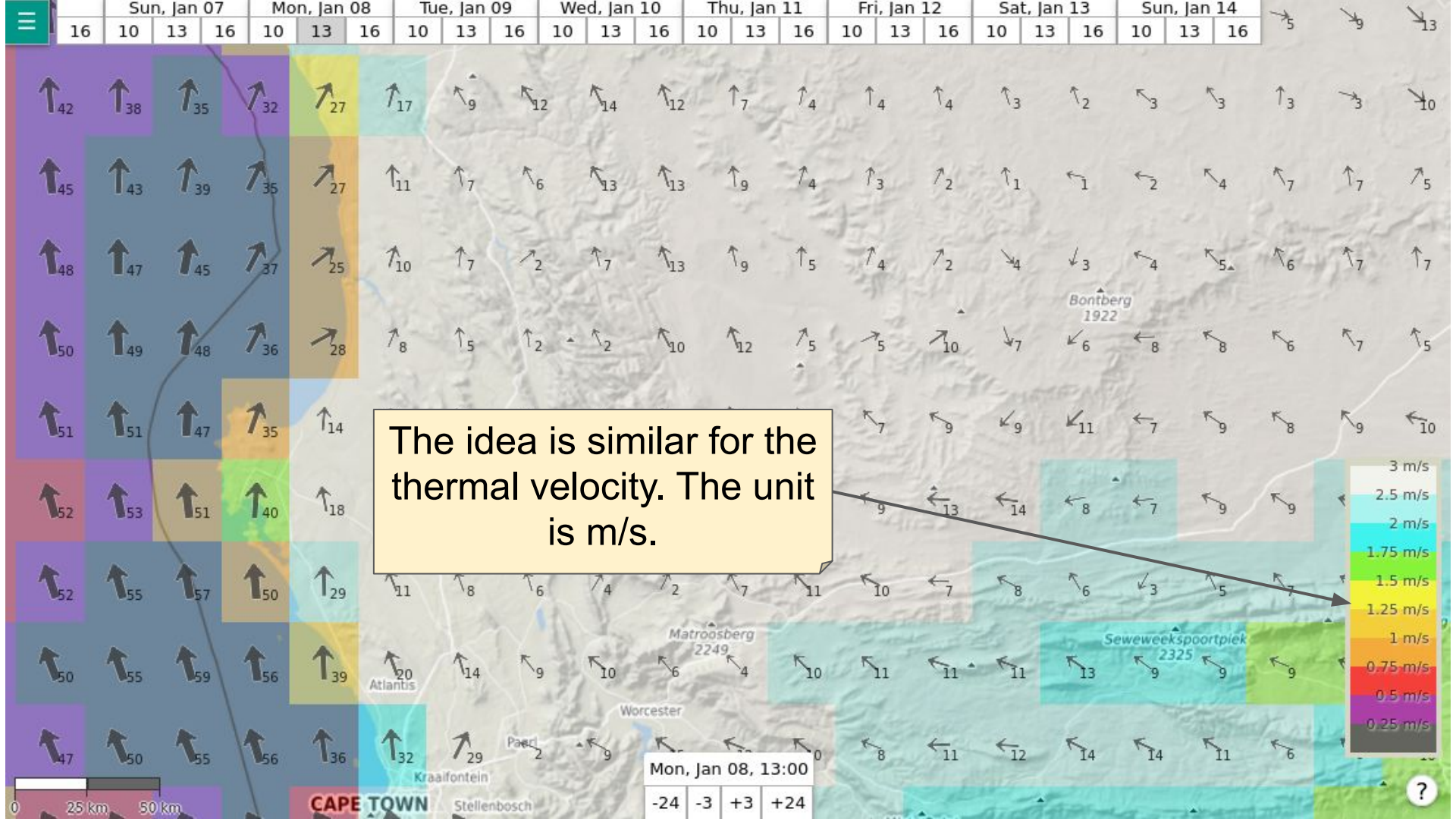
The formula for the thermal quality takes into account:

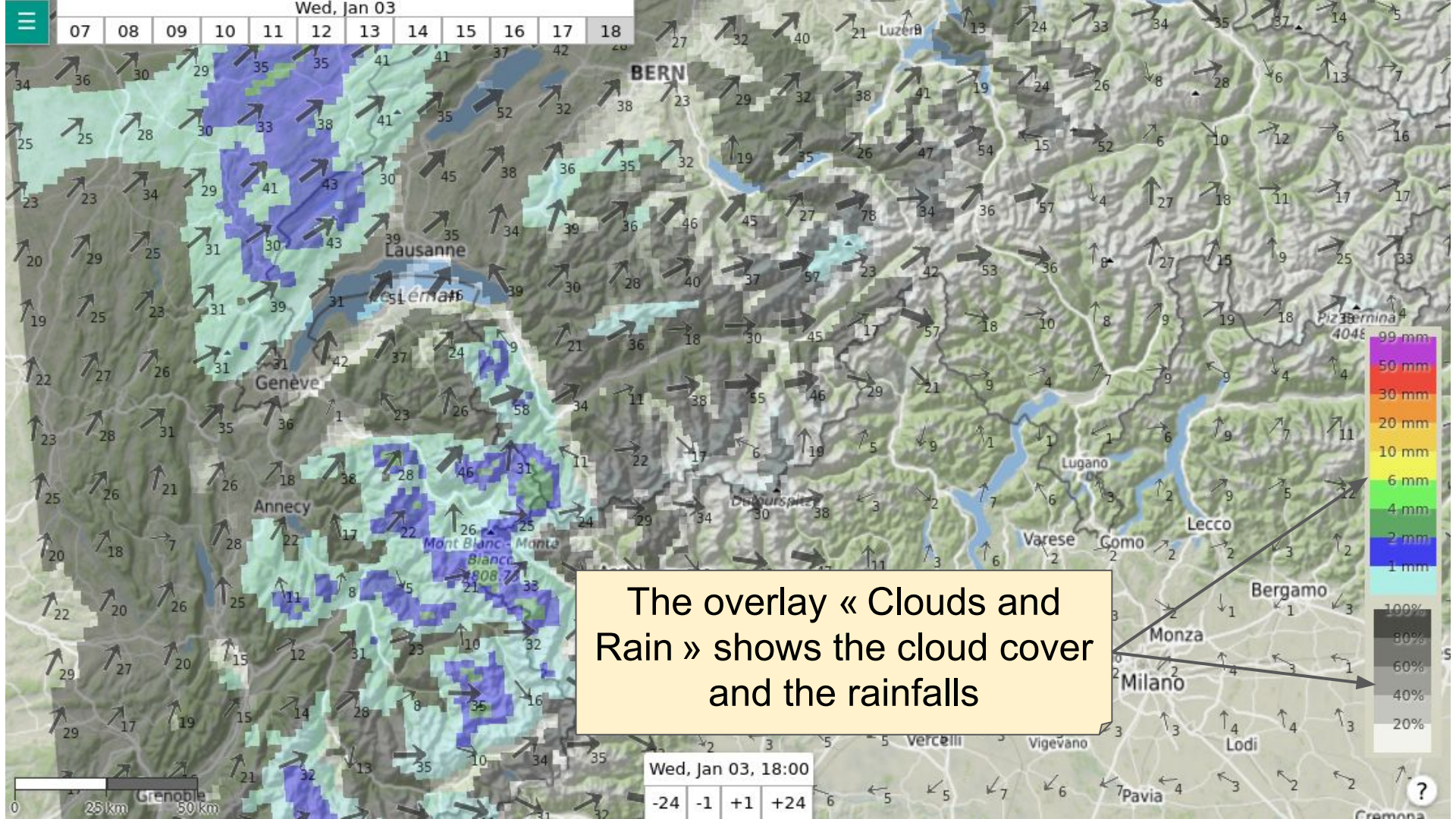
the ground heating,
the thermals height,
and the wind speed (average within the boundary layer)

Back to the previous question: How to refine our interpretation of the forecast?

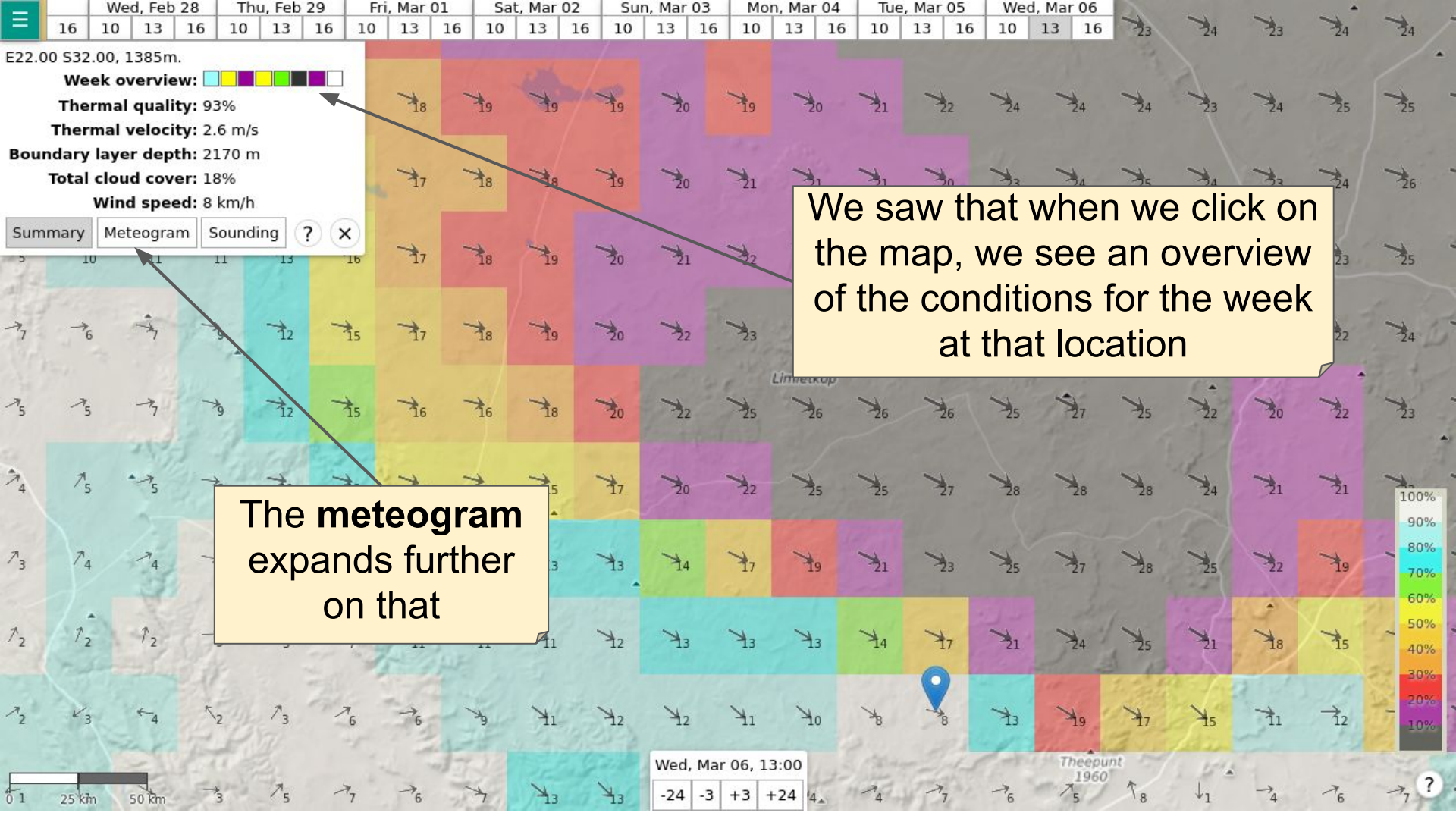

Soaringmeteo
Display on map
Overlay
Thermal Quality
Boundary Layer Depth
Thermal Velocity
Clouds and Rain
Cumulus Clouds
Wind
Surface
300 m AGL
Boundary Layer
Boundary Layer Top
2000 m AMSL
3000 m AMSL
4000 m AMSL
Forecast data
Model
soarGFS (25 km)
soarWRF (2-6 km)
Initialization Time
Tue, Feb 27, 13:00
Zone
Australia
Europe
Himalaya
North America
South Africa
South America
Settings
About
Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
Select a specific overlay to display only the boundary layer depth, the thermal velocity, or the clouds and rain.
By default, the average wind speed in the boundary layer is displayed. You can also display the wind at the top of the boundary layer or at specific elevation levels.
CAPE TOWN
Wed, Feb 28, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%

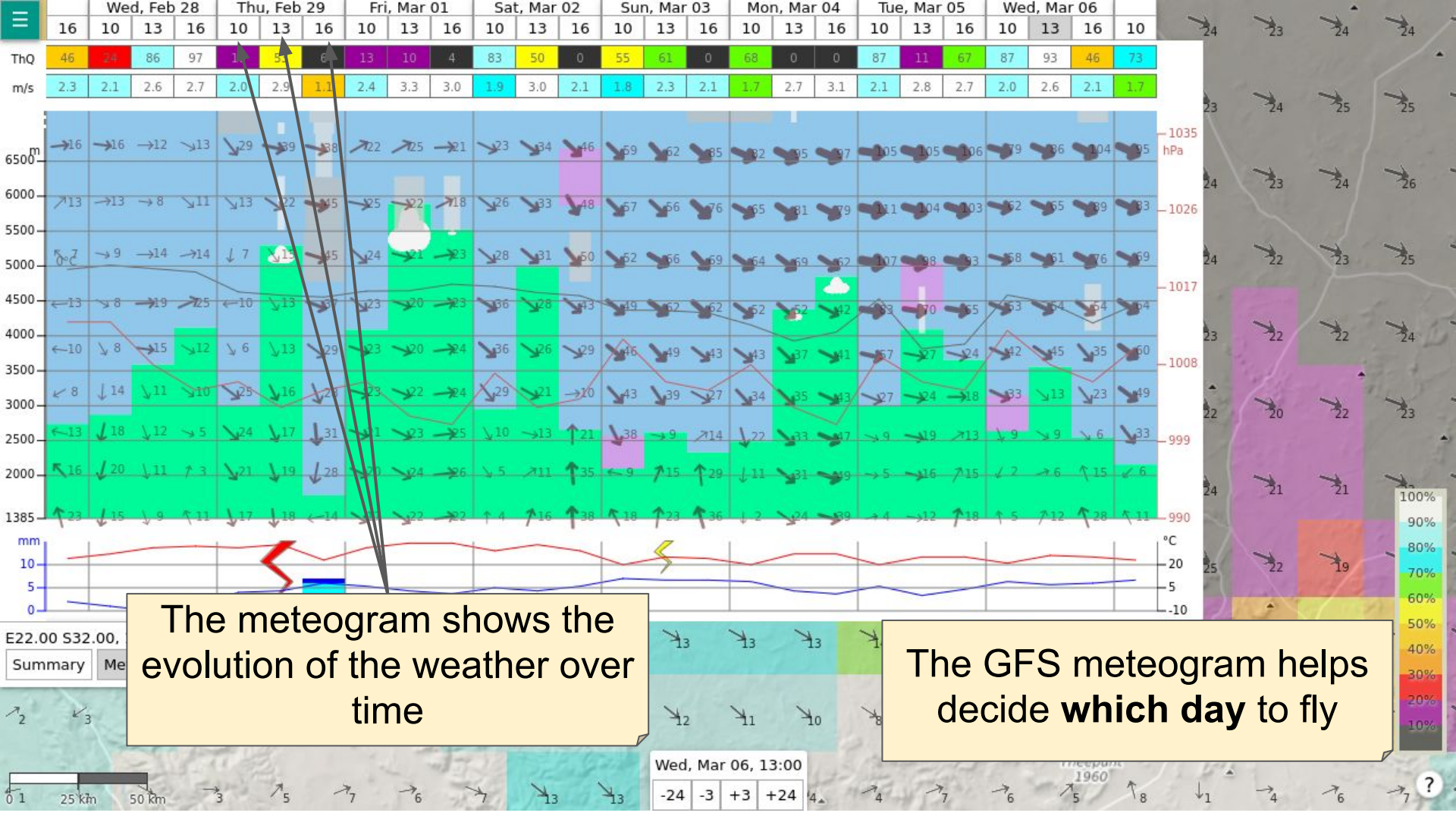

Sun, Jan 07
Mon, Jan 08
Tue, Jan 09
Wed, Jan 10
Thu, Jan 11
Fri, Jan 12
Sat, Jan 13
Sun, Jan 14
The boundary layer depth uses the same color scale as the thermal quality, but its unit is in meters (above ground level)
2500 m
2250 m
2000 m
1750 m
1500 m
1250 m
1000 m
750 m
500 m
250 m
Bontberg 1922
Matroosberg 2249
Seweweekspoortpiek 2325
Worcester
Atlantis
Paarl
Kraaifontein
CAPE TOWN
Stellenbosch
Mon, Jan 08, 13:00
-24
-3
+3
+24
0
25 km
50 km

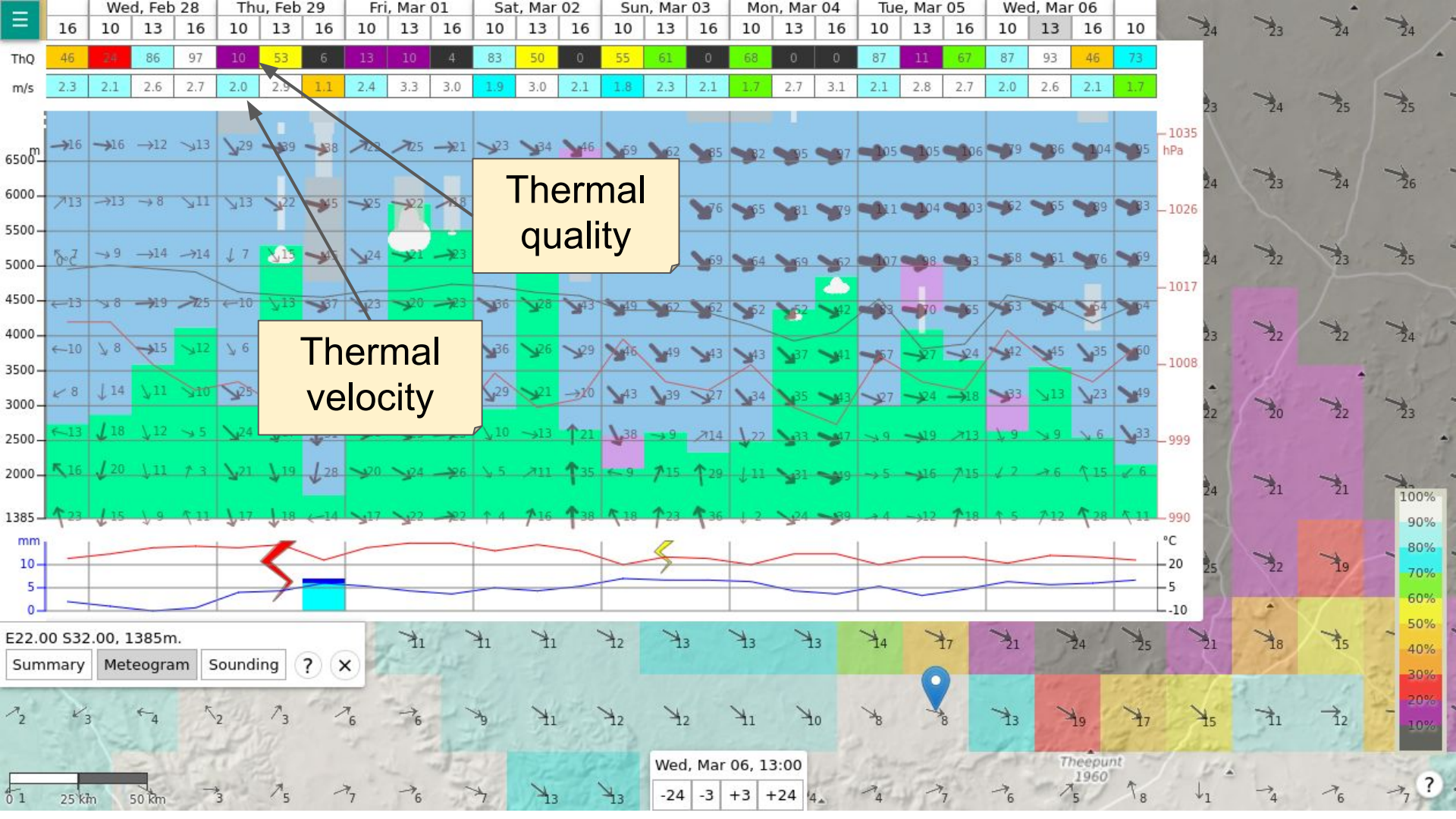

Sun, Jan 07
Mon, Jan 08
Tue, Jan 09
Wed, Jan 10
Thu, Jan 11
Fri, Jan 12
Sat, Jan 13
Sun, Jan 14
The idea is similar for the thermal velocity. The unit is m/s.
3 m/s
2.5 m/s
2 m/s
1.75 m/s
1.5 m/s
1.25 m/s
1 m/s
0.75 m/s
0.5 m/s
0.25 m/s
Bontberg 1922
Matroosberg 2249
Seweweekspoortpiek 2325
Worcester
Atlantis
Paarl
Kraaifontein
CAPE TOWN
Stellenbosch
Mon, Jan 08, 13:00
-24
-3
+3
+24
0
25 km
50 km

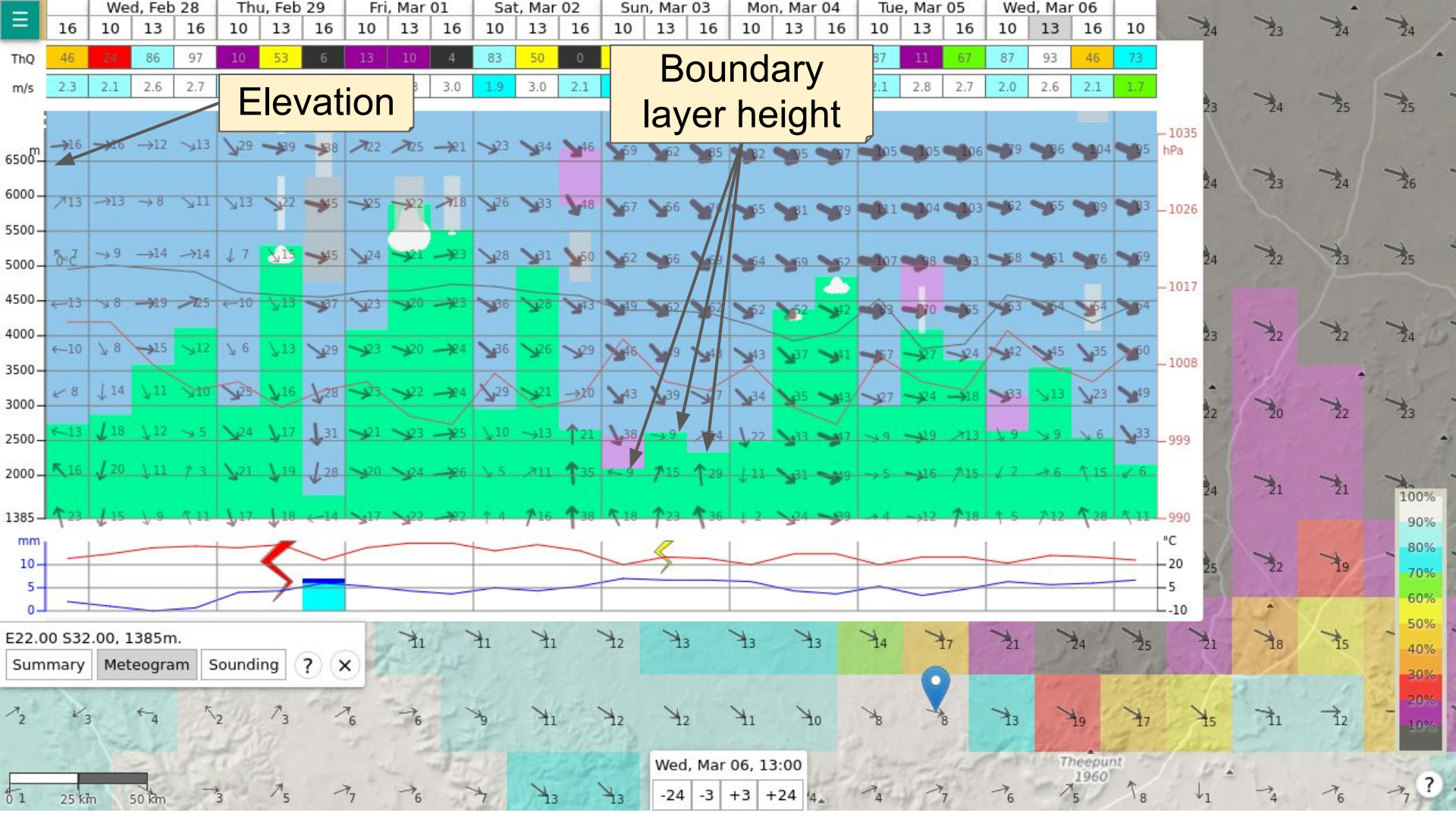

Wed, Jan 03
07 08 09 10 11 12 13 14 15 16 17 18
BERN
Lausanne
Genève
Annecy
Mont Blanc - Monte Bianco 4808 m
Lugano
Varese
Como
Lecco
Bergamo
Monza
Milano
Vercelli
Vigevano
Lodi
Pavia
Cremona
Grenoble
0 25 km 50 km
99 mm
50 mm
30 mm
20 mm
10 mm
6 mm
4 mm
2 mm
1 mm
100%
80%
60%
40%
20%
Wed, Jan 03, 18:00
-24 -1 +1 +24
The overlay « Clouds and Rain » shows the cloud cover and the rainfalls

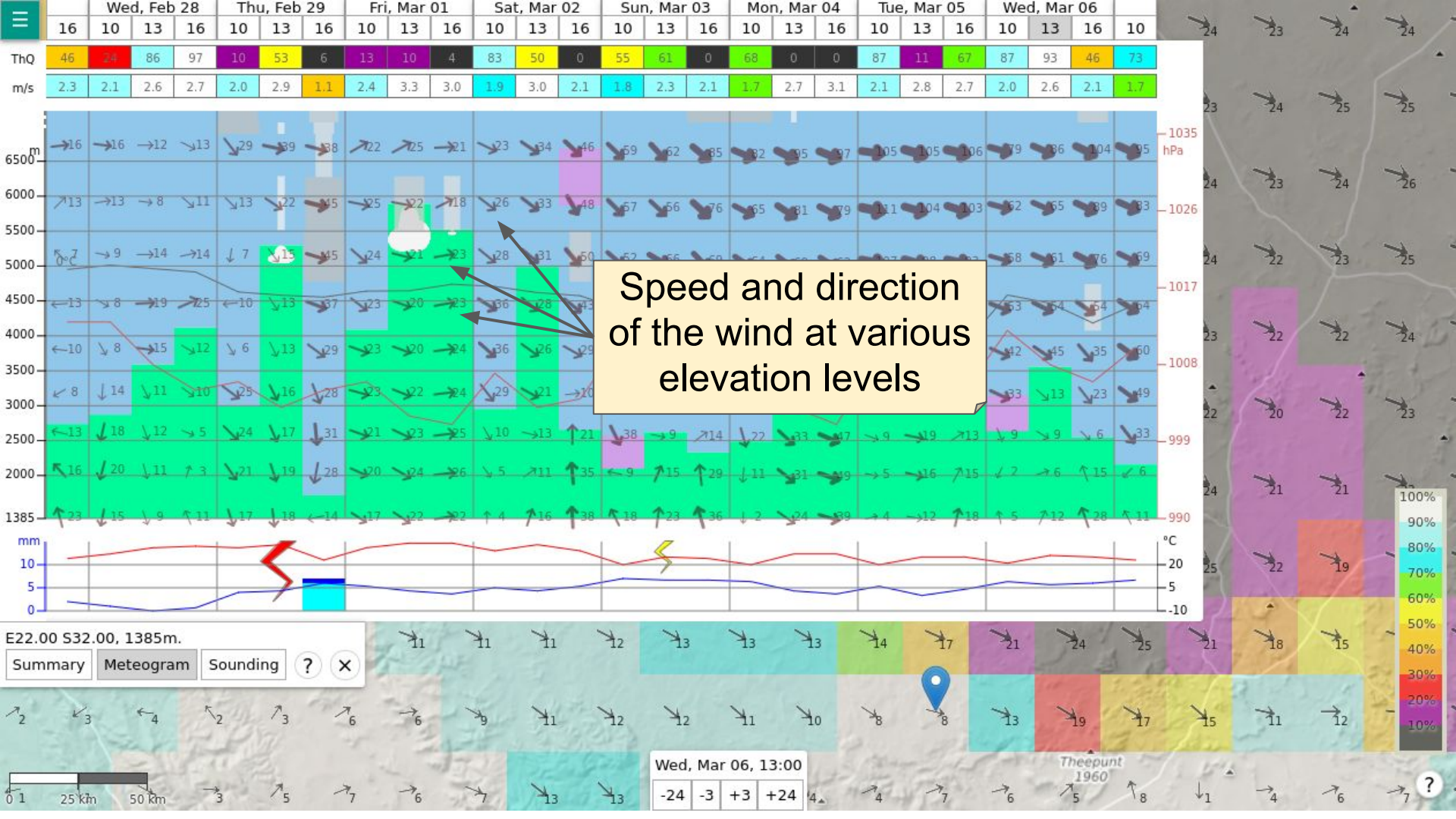
How to decide **when** to fly?

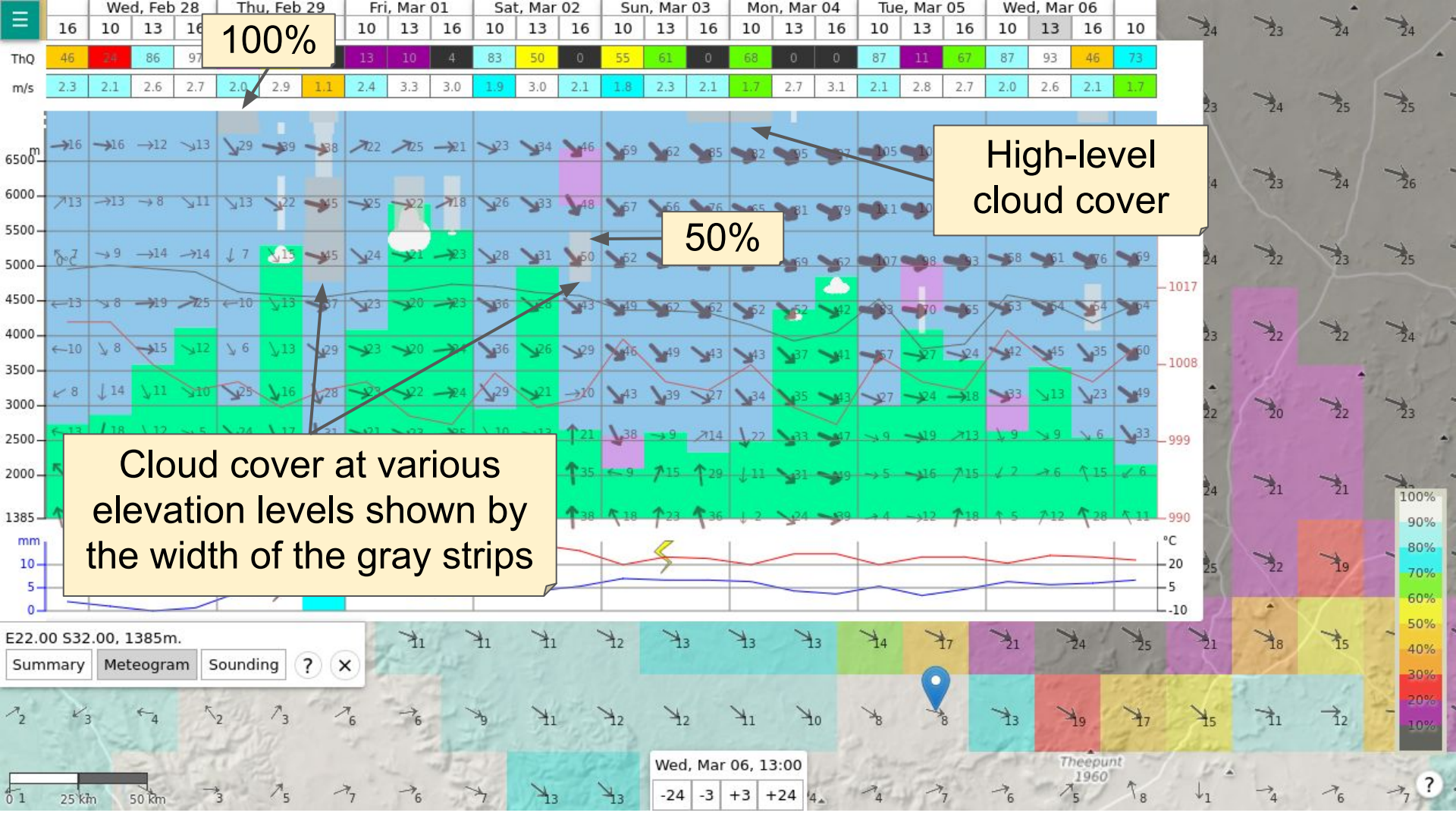

Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
E22.00 S32.00, 1385m.
Week overview:
Thermal quality: 93%
Thermal velocity: 2.6 m/s
Boundary layer depth: 2170 m
Total cloud cover: 18%
Wind speed: 8 km/h
Summary
Meteogram
Sounding
We saw that when we click on the map, we see an overview of the conditions for the week at that location
The meteogram expands further on that
Wed, Mar 06, 13:00
-24
-3
+3
+24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
25 km
50 km

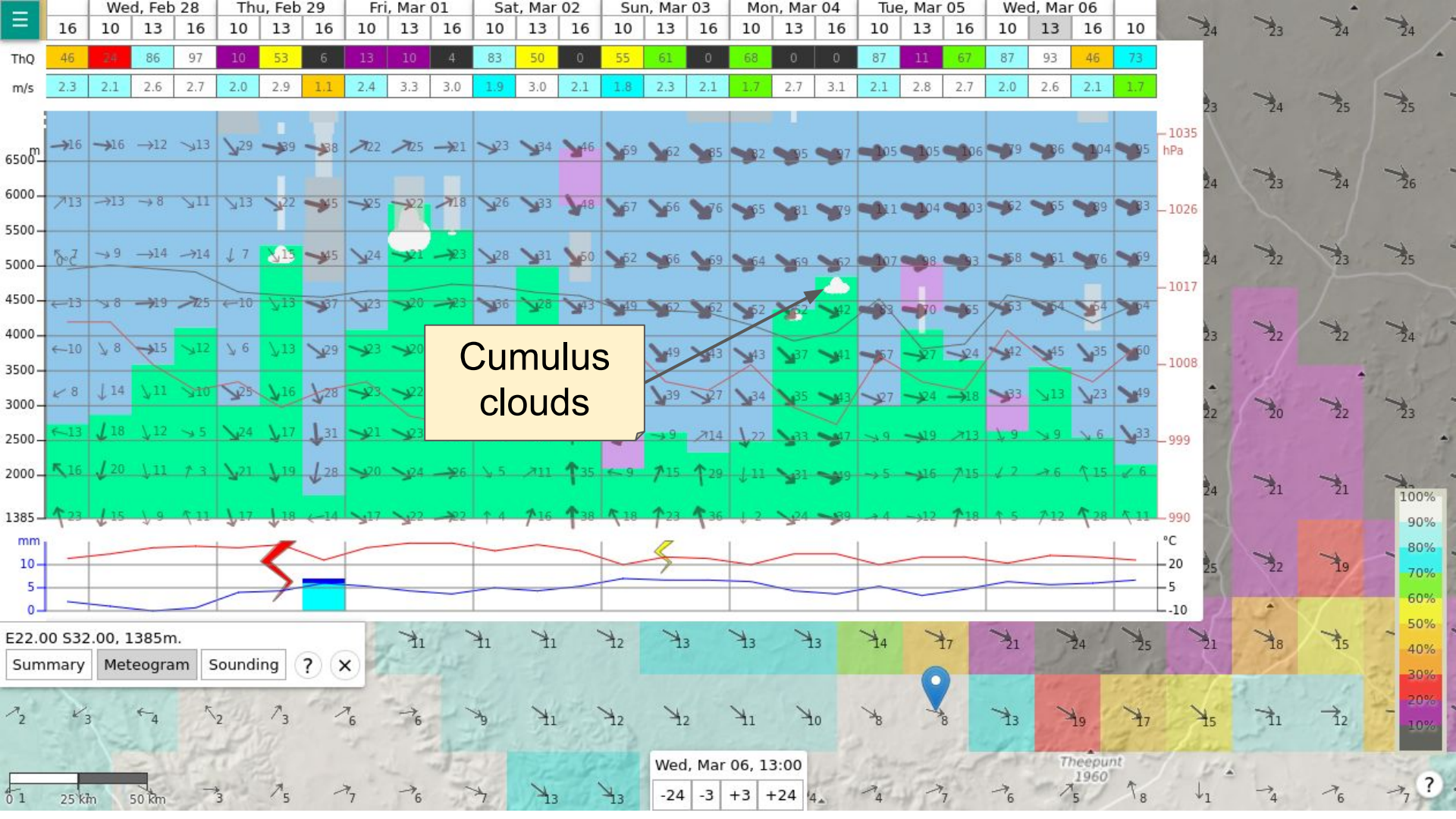

Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
ThQ
m/s
hPa
mm
°C
The meteogram shows the evolution of the weather over time
The GFS meteogram helps decide **which day** to fly
Summary
Wed, Mar 06, 13:00
-24
-3
+3
+24

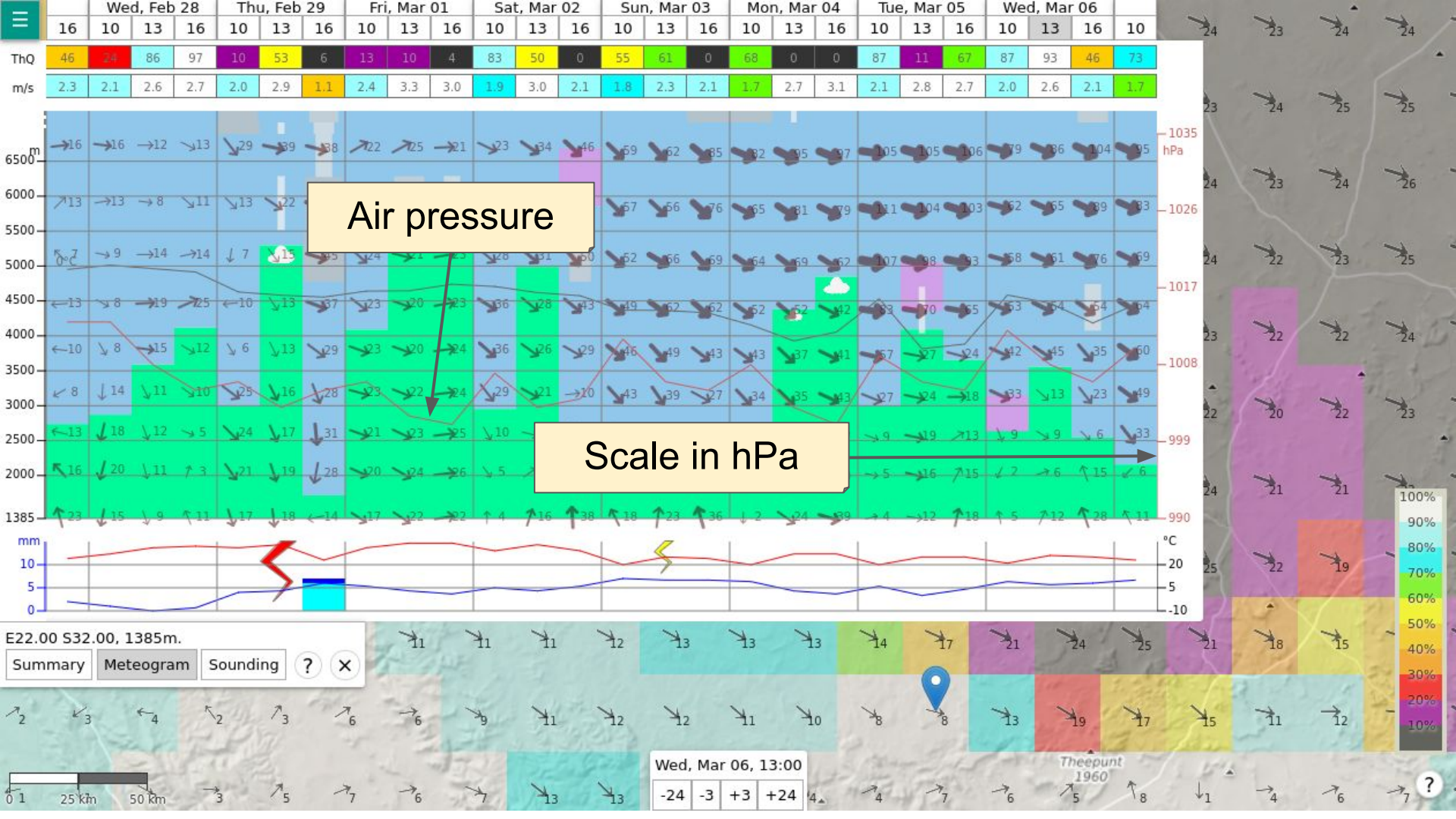

Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
ThQ
m/s
Thermal quality
Thermal velocity
hPa
mm
°C
E22.00 S32.00, 1385m.
Summary
Meteogram
Sounding
Wed, Mar 06, 13:00
-24
-3
+3
+24
Theepunt 1960
25 km
50 km

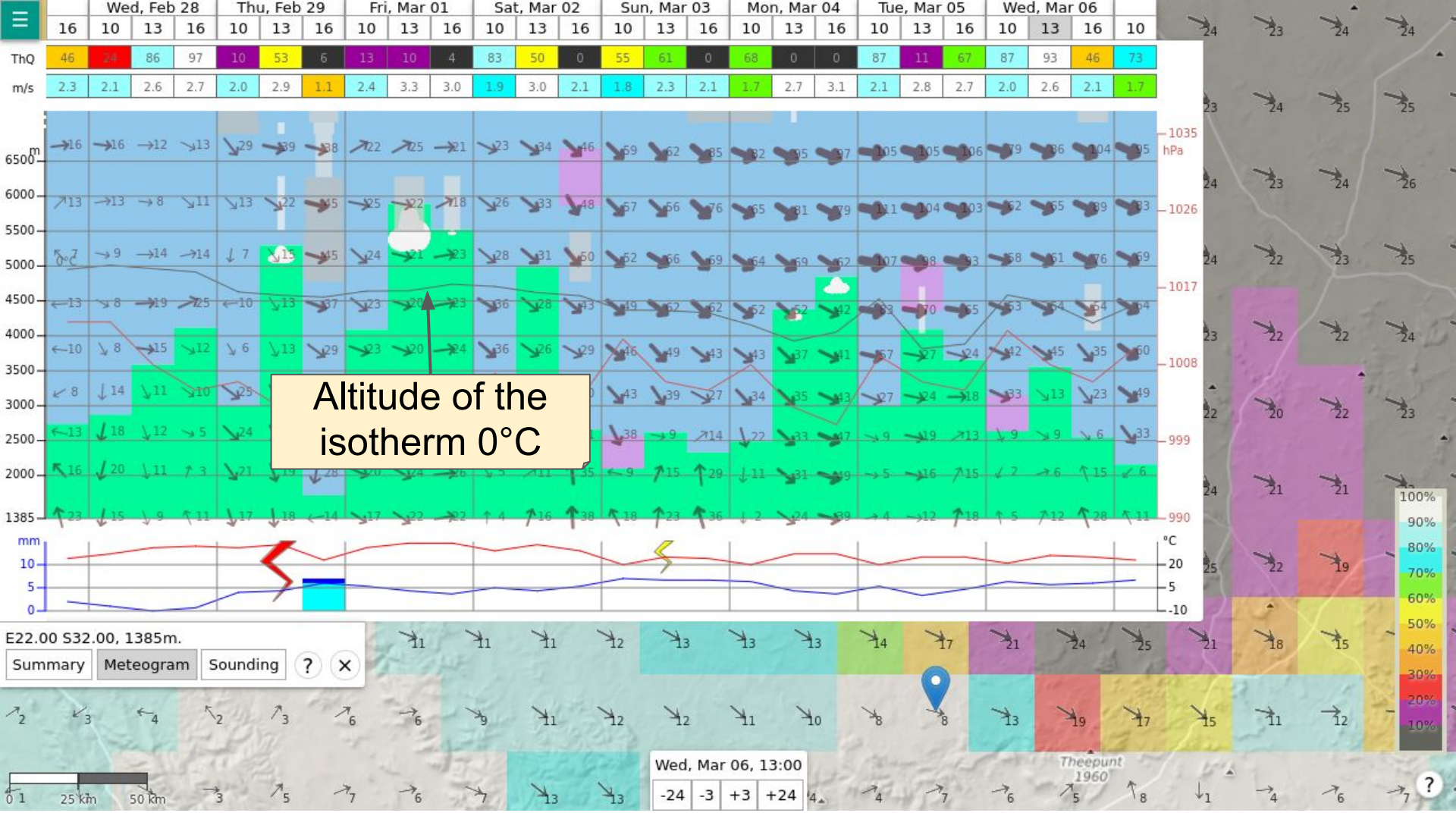

Elevation
Boundary layer height
Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
ThQ
m/s
m
hPa
°C
mm
E22.00 S32.00, 1385m.
Summary
Meteogram
Sounding
Wed, Mar 06, 13:00
-24
-3
+3
+24
Theepunt 1960
0 1
25 km
50 km

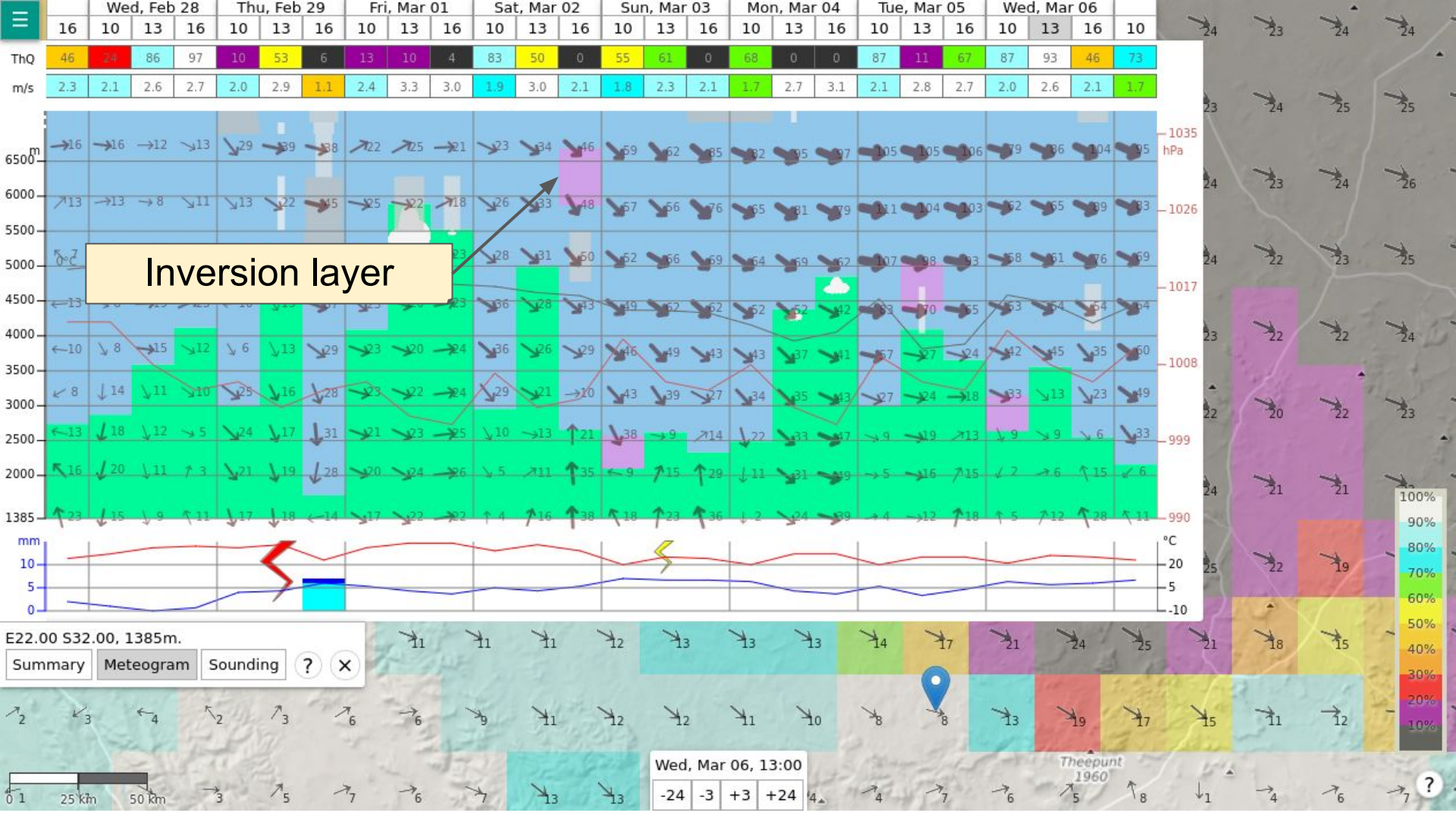

Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
ThQ
m/s
m
hPa
°C
mm
Speed and direction of the wind at various elevation levels
E22.00 S32.00, 1385m.
Summary
Meteogram
Sounding
Wed, Mar 06, 13:00
-24
-3
+3
+24
Theepunt 1960
25 km
50 km

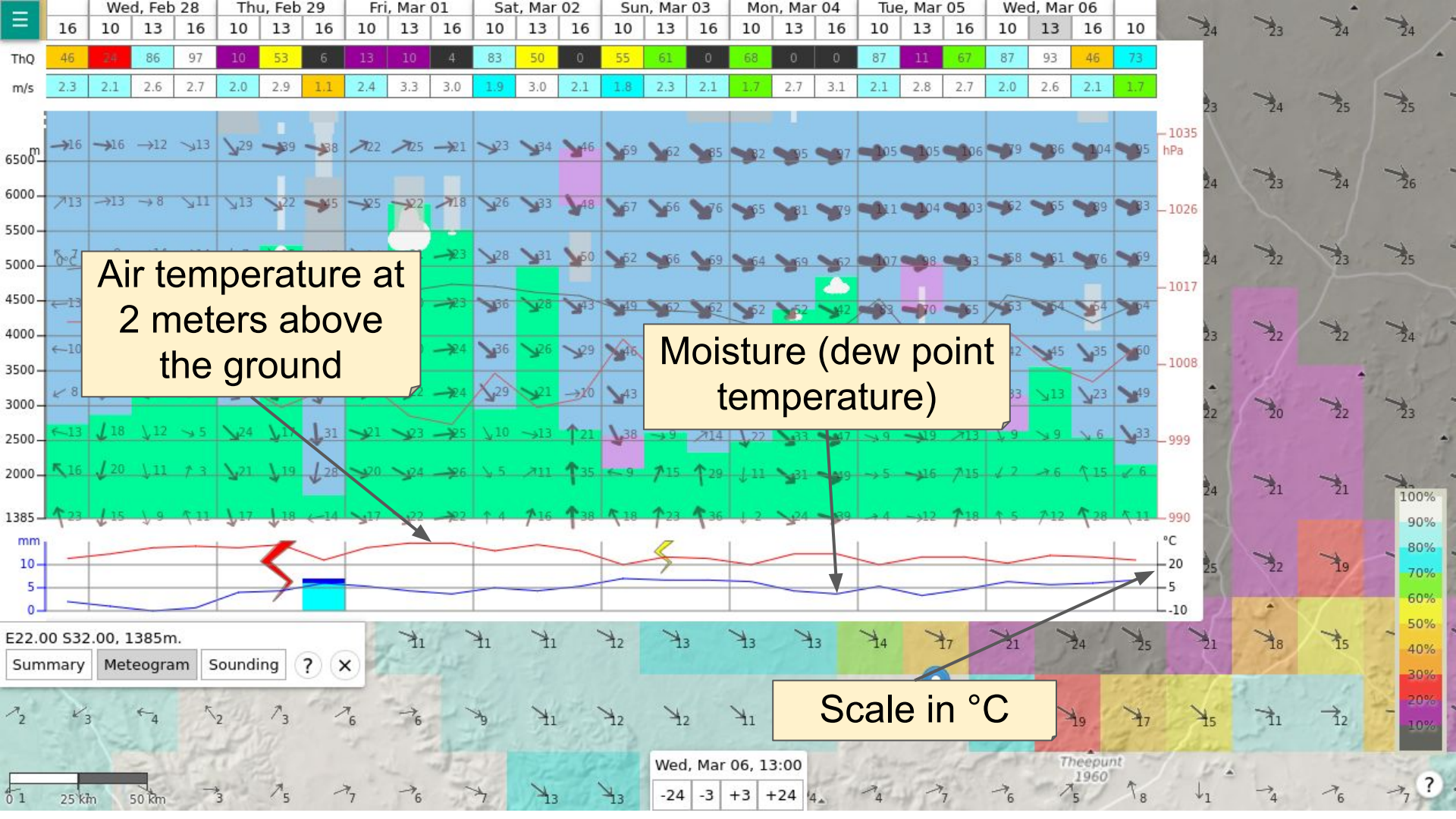

100%
High-level cloud cover
50%
Cloud cover at various elevation levels shown by the width of the gray strips
Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
ThQ
m/s
E22.00 S32.00, 1385m.
Summary
Meteogram
Sounding
Wed, Mar 06, 13:00
-24
-3
+3
+24
Theepunt 1960
0 1
25 km
50 km

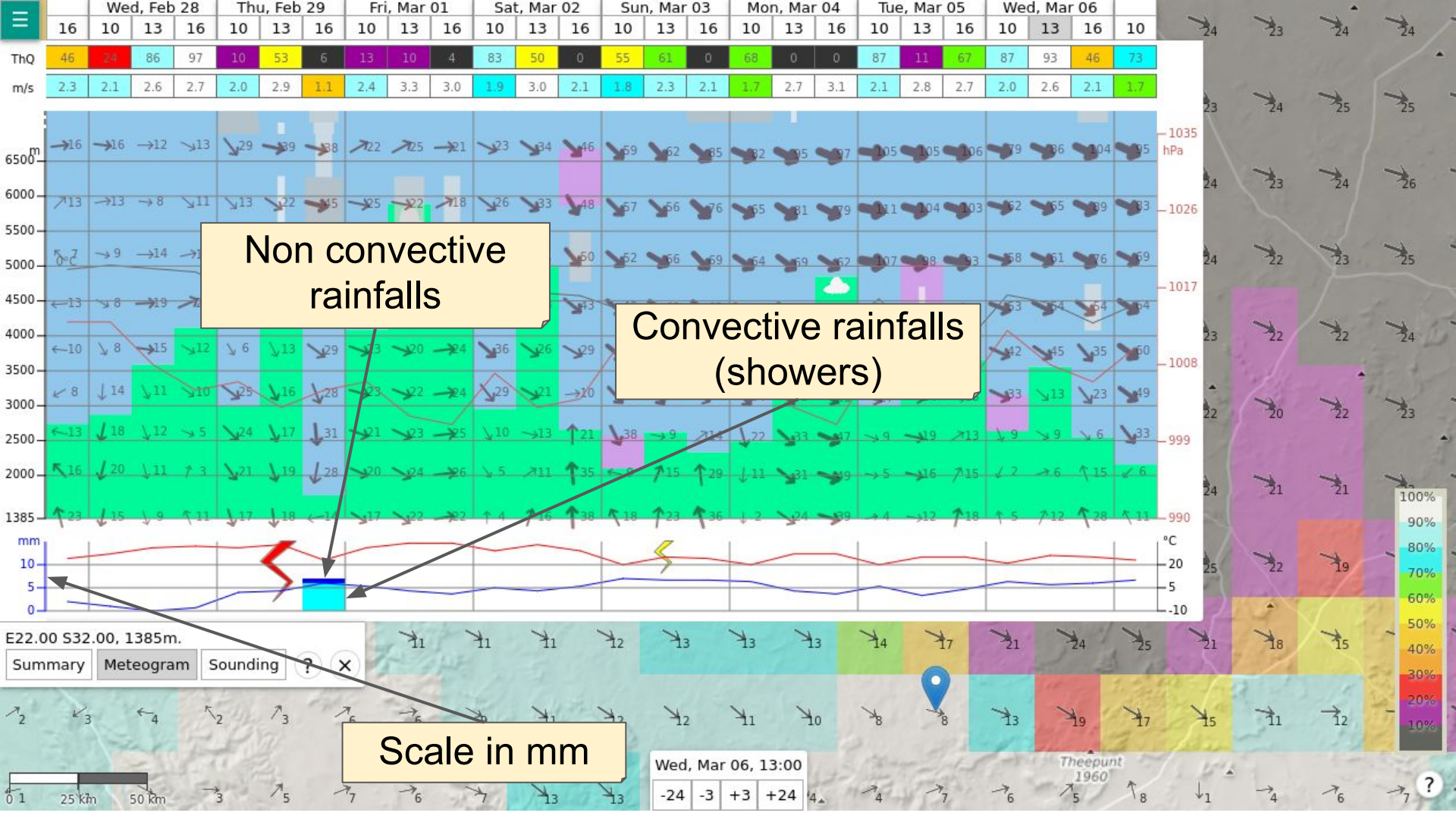

Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
ThQ
m/s
m
hPa
°C
mm
Cumulus clouds
E22.00 S32.00, 1385m.
Summary
Meteogram
Sounding
Wed, Mar 06, 13:00
-24
-3
+3
+24
Theepunt 1960
0 1
25 km
50 km

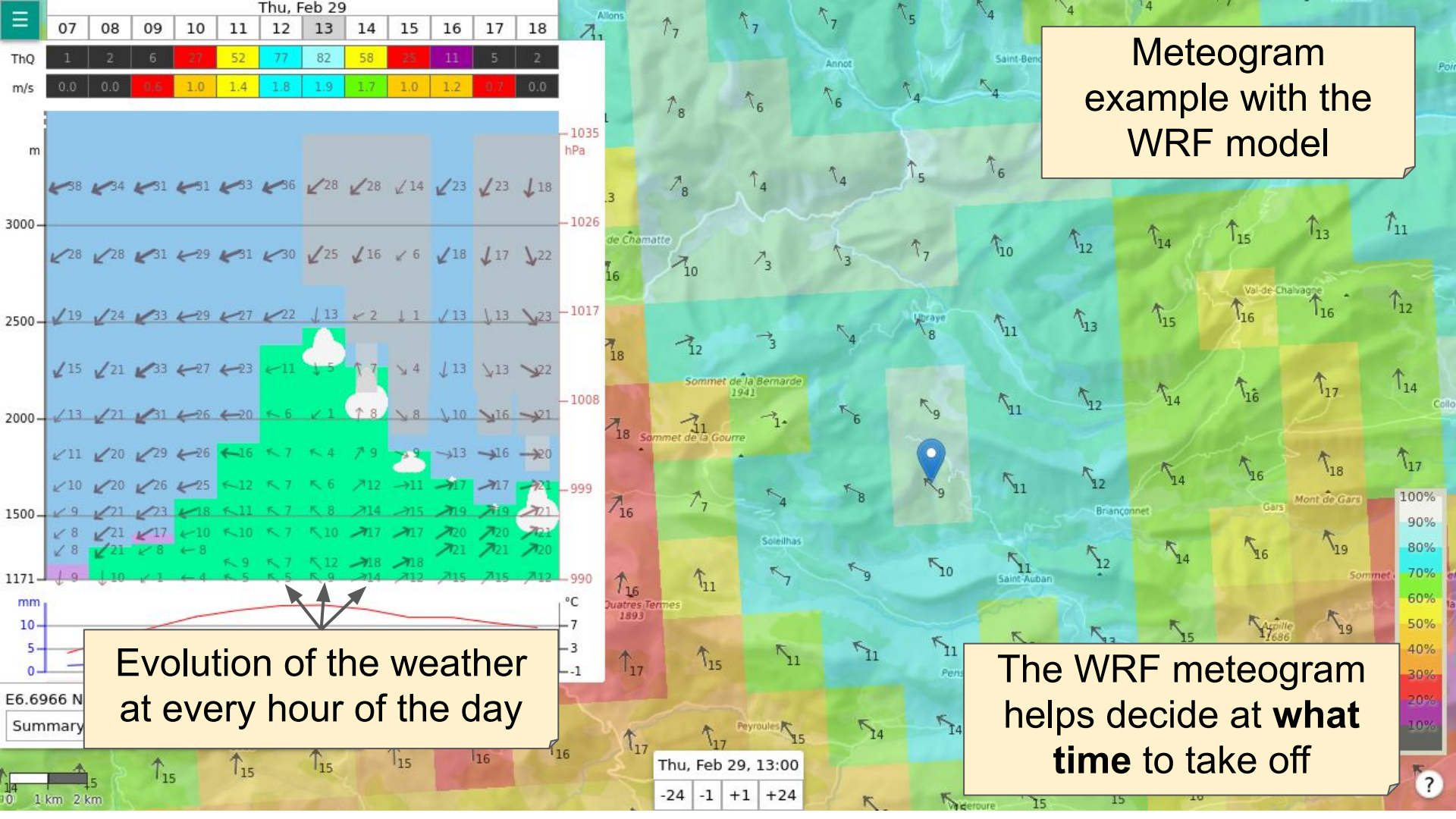

Air pressure
Scale in hPa

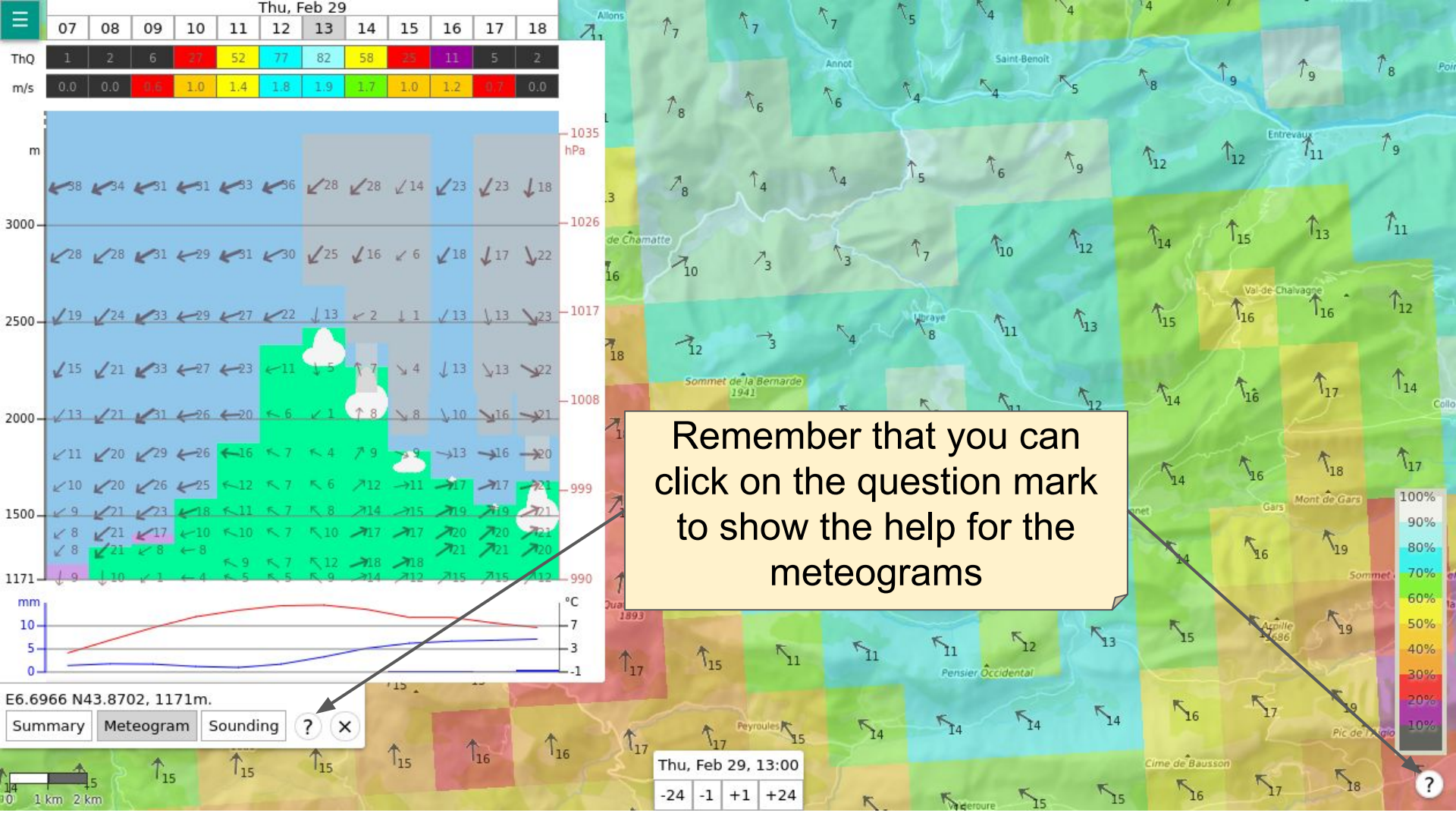

Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
ThQ
m/s
m
hPa
°C
mm
Altitude of the isotherm 0°C
E22.00 S32.00, 1385m.
Summary
Meteogram
Sounding
Wed, Mar 06, 13:00
-24
-3
+3
+24
Theepunt 1960
0 1
25 km
50 km


Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
ThQ
m/s
Inversion layer
m
hPa
mm
°C
E22.00 S32.00, 1385m.
Summary
Meteogram
Sounding
Wed, Mar 06, 13:00
-24
-3
+3
+24
Theepunt 1960
0 1
25 km
50 km

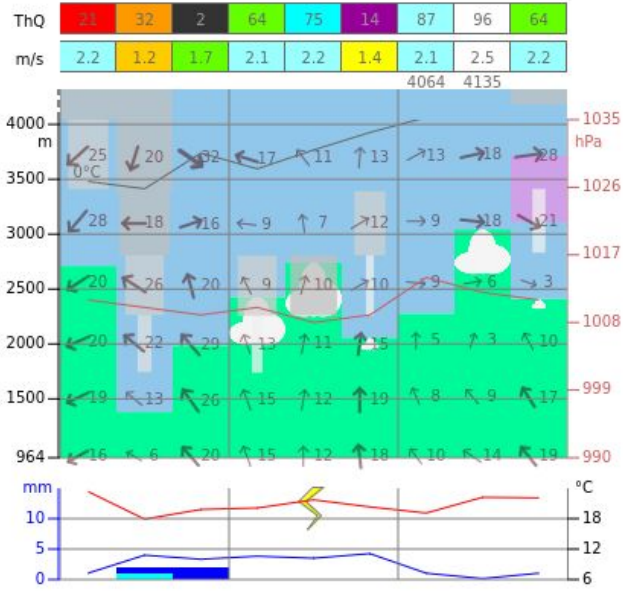

Air temperature at 2 meters above the ground
Moisture (dew point temperature)
Scale in °C
Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
ThQ
m/s
hPa
mm
°C
E22.00 S32.00, 1385m.
Summary
Meteogram
Sounding
Wed, Mar 06, 13:00
-24
-3
+3
+24


Non convective rainfalls
Convective rainfalls (showers)
Scale in mm
Wed, Feb 28
Thu, Feb 29
Fri, Mar 01
Sat, Mar 02
Sun, Mar 03
Mon, Mar 04
Tue, Mar 05
Wed, Mar 06
ThQ
m/s
hPa
mm
°C
E22.00 S32.00, 1385m.
Summary
Meteogram
Sounding
Wed, Mar 06, 13:00
-24
-3
+3
+24


Thu, Feb 29
07 08 09 10 11 12 13 14 15 16 17 18
ThQ 1 2 6 27 52 77 82 58 25 11 5 2
m/s 0.0 0.0 0.6 1.0 1.4 1.8 1.9 1.7 1.0 1.2 0.7 0.0
m
3000
2500
2000
1500
1171
1035 hPa
1026
1017
1008
999
990
mm
10
5
0
°C
7
3
-1
E6.6966 N
Summary
Meteogram example with the WRF model
Evolution of the weather at every hour of the day
The WRF meteogram helps decide at what time to take off
Thu, Feb 29, 13:00
-24 -1 +1 +24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
1 km 2 km


Thu, Feb 29
07 08 09 10 11 12 13 14 15 16 17 18
ThQ 1 2 6 27 52 77 82 58 25 11 5 2
m/s 0.0 0.0 0.6 1.0 1.4 1.8 1.9 1.7 1.0 1.2 0.7 0.0
m
3000
2500
2000
1500
1171
1035 hPa
1026
1017
1008
999
990
mm
10
5
0
°C
7
3
-1
E6.6966 N43.8702, 1171m.
Summary
Meteogram
Sounding
?
×
Remember that you can click on the question mark to show the help for the meteograms
Thu, Feb 29, 13:00
-24 -1 +1 +24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
1 km 2 km

Meteograms show the weather forecast for the selected location over time. Here is an example of three days meteogram that we made up for documentation purpose:



The **top row** (“ThQ”) shows the estimated thermal quality (between 0% and 100%). The higher the number, the higher the chances to fly thermals. It takes into account the boundary layer depth, the average thermal velocity, the wind speed, and the ground warming. Select the layer “Thermal Quality” in the map view to learn more about how it works.

The **second row** (“m/s”) shows the estimated average thermal velocity (in m/s) within the boundary layer. Values above 1 m/s usually mean that thermals should be just strong enough to stay in the air. Values above 2 m/s mean good thermals.

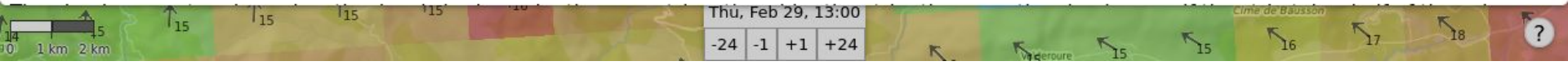
Below those numbers, the “airgram” shows various properties of the air at the selected location over time. The scale on the left shows the altitude. In this example, it starts at 964 m, which is the altitude of the selected location as seen by the current forecast model.

The **green area** shows the planetary boundary layer, which is the part of the atmosphere where we can expect to find thermals and soar. In this example, we see that the boundary layer reaches 3043 m in the middle of the last day. It is good to have a boundary layer of at least 750 m above the ground level to fly cross-country.

The **purple strips** indicate inversion layers. Inversions are parts of the atmosphere where the air is very stable. They block thermals and the development of convective clouds.

The **wind** and **clouds** are also shown in that diagram at various elevation levels. For instance, within the boundary layer, there is moderate wind the first two days (between 15 km/h and 30 km/h), and light wind the third day (5 to 15 km/h). The wind comes from the south the second day.

Cumulus clouds are shown by the **white cloud picture** Soaring pilots can not fly higher than the cloud base. When there is no cloud picture at all, it means there will be “blue thermals”. The presence of cumulus clouds is a good thing to fly cross-country, but if they develop too high they can produce showers or thunderstorms.



The map helps decide **where** to fly

The meteogram helps decide **when** to fly

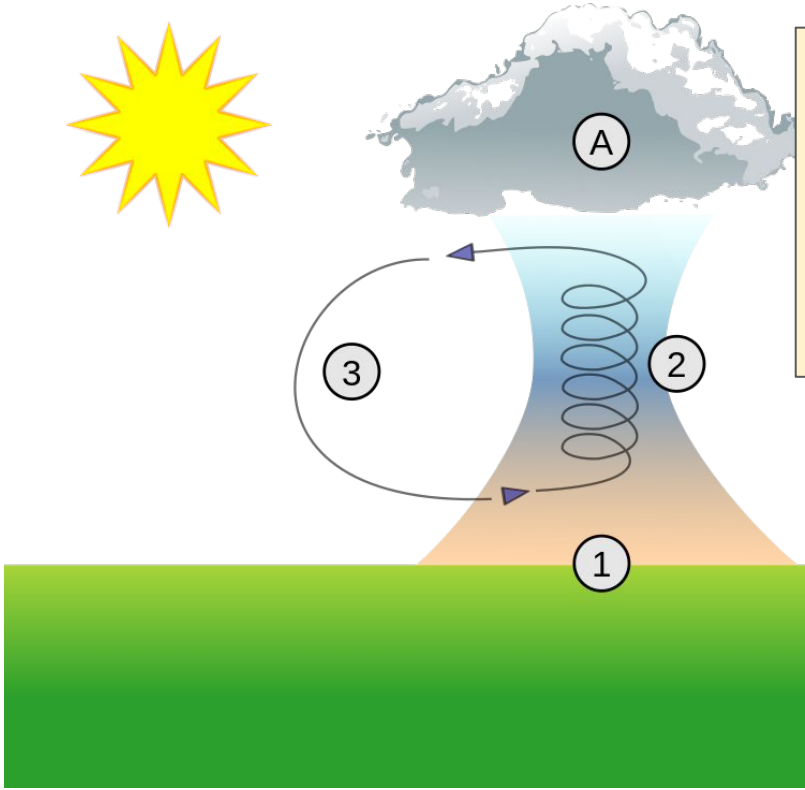
What is the **sounding diagram** useful for?

The sounding diagram describes the state of the atmosphere at one location and time

It helps visualize the **instability** of the atmosphere and the **risk of thunderstorms**

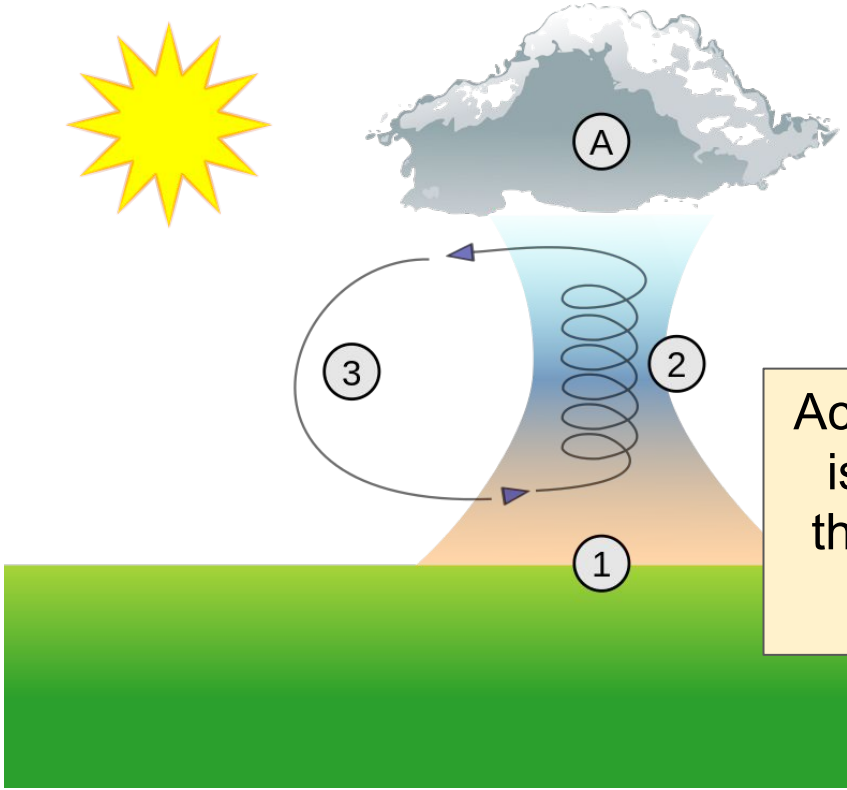
What is the atmosphere **instability**?

What is the atmosphere instability?



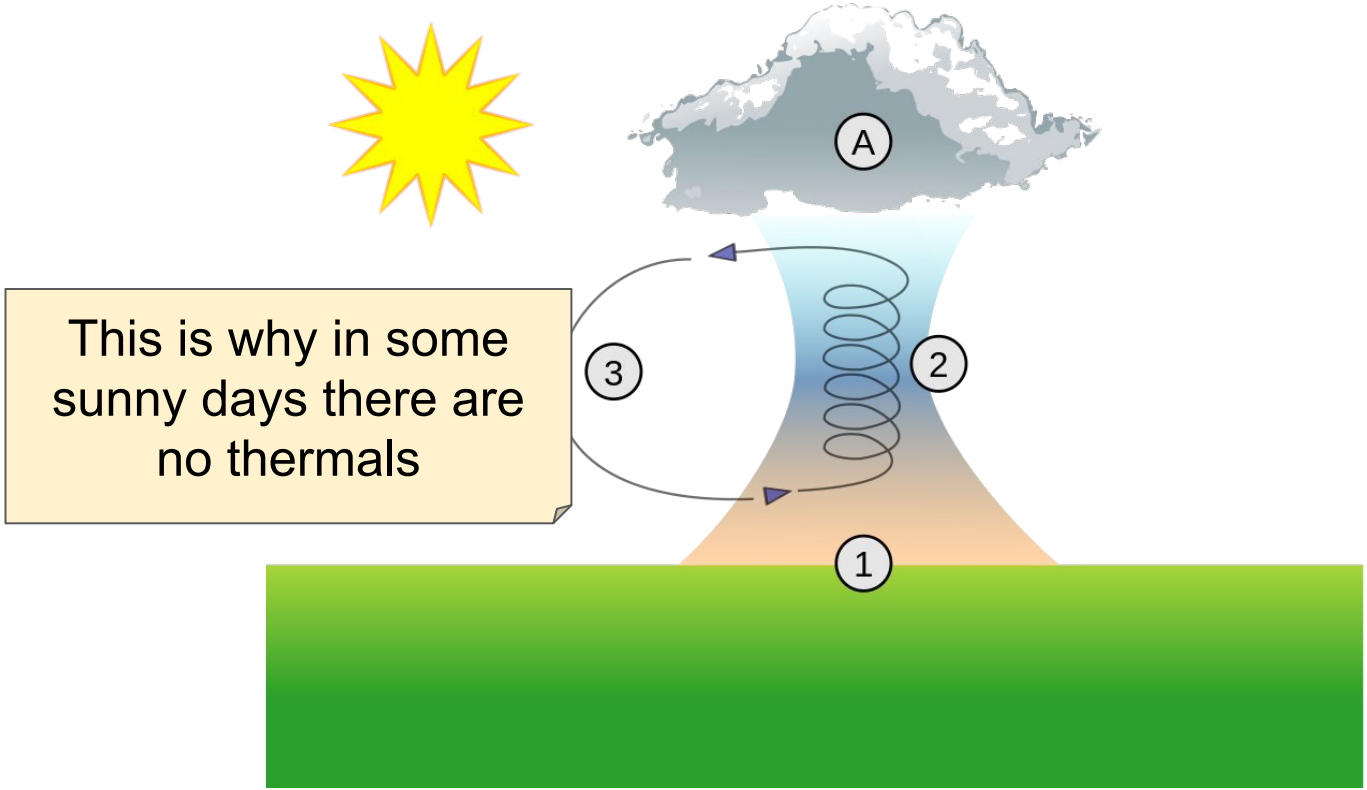
In the explication about thermals, we said that “warm air rises because it is less dense than the surrounding air”

What is the atmosphere instability?



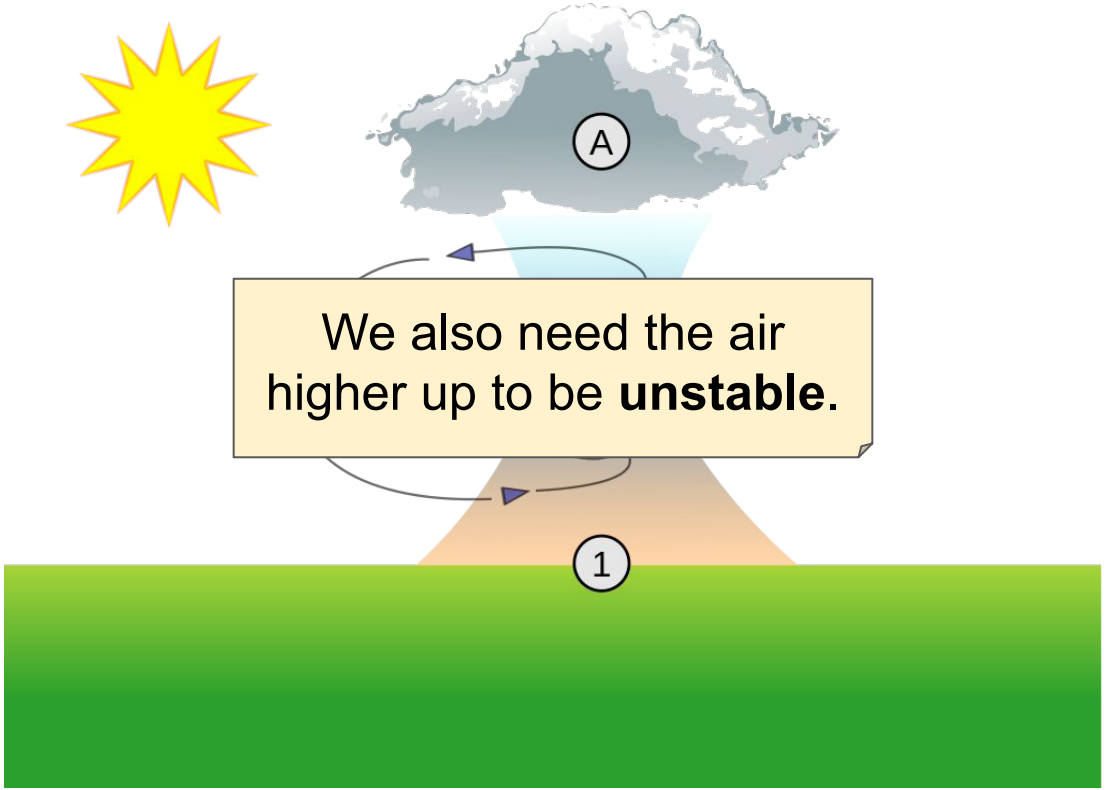
Actually, the surrounding air is not necessarily denser than the air in the thermal, especially higher up.

What is the atmosphere instability?



This is why in some sunny days there are no thermals

What is the atmosphere instability?



Let us use an analogy

Consider someone kicking a ball…

Photo de Ruben Leija sur Unsplash

If the ground is flat, the ball eventually stops

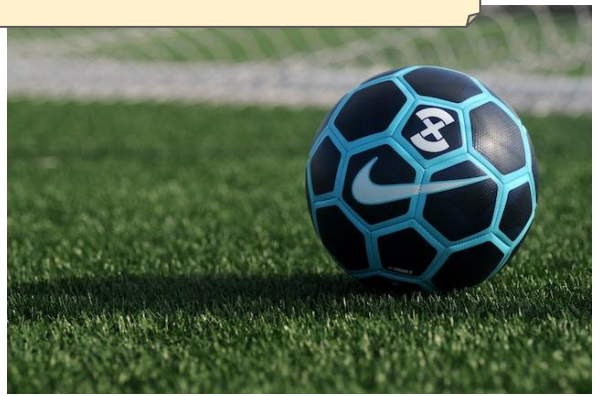


Photo de Ruben Leija sur Unsplash

Photo de Ben Hershey sur Unsplash

However, if the ball lands on on slope, it continues moving! And it keeps moving as long as the terrain is sloping…

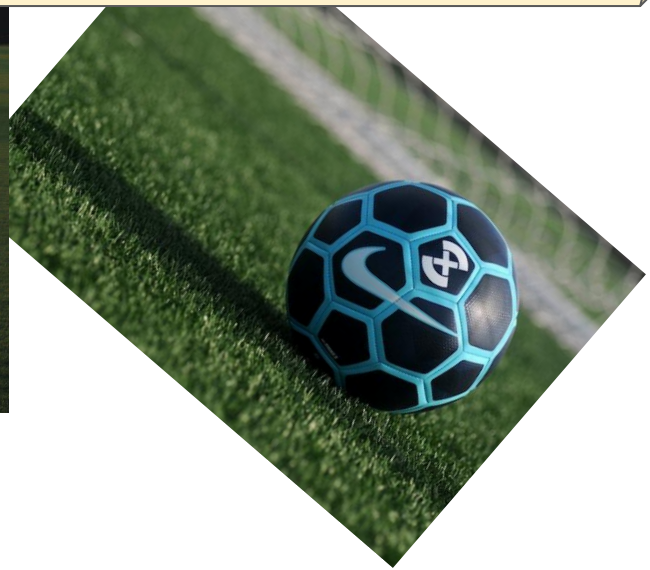
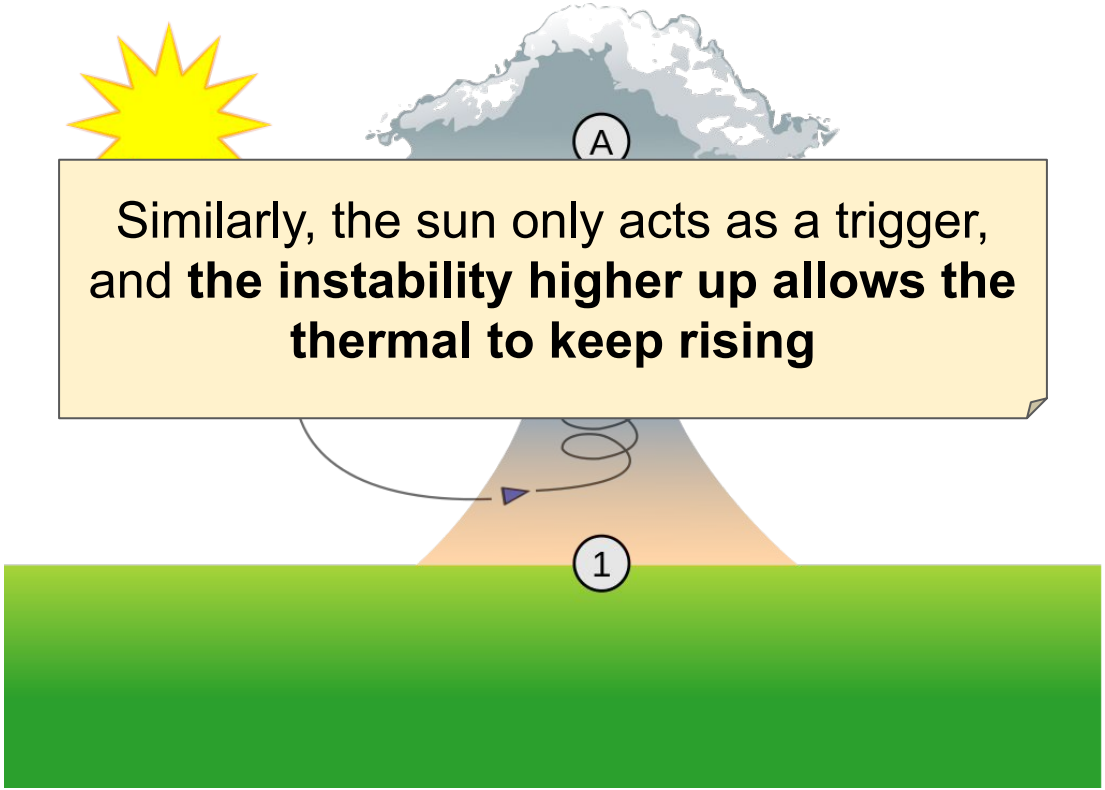
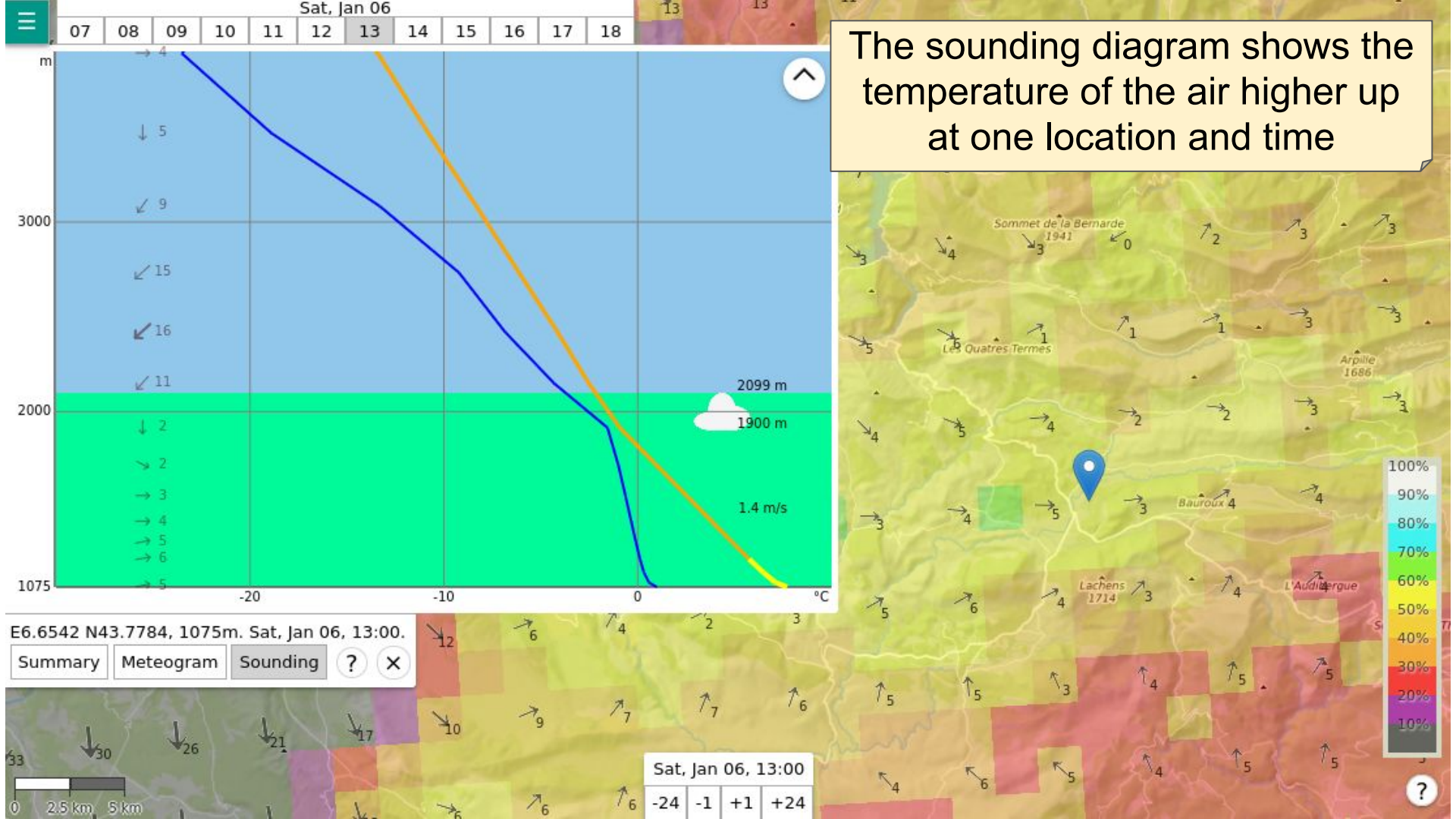


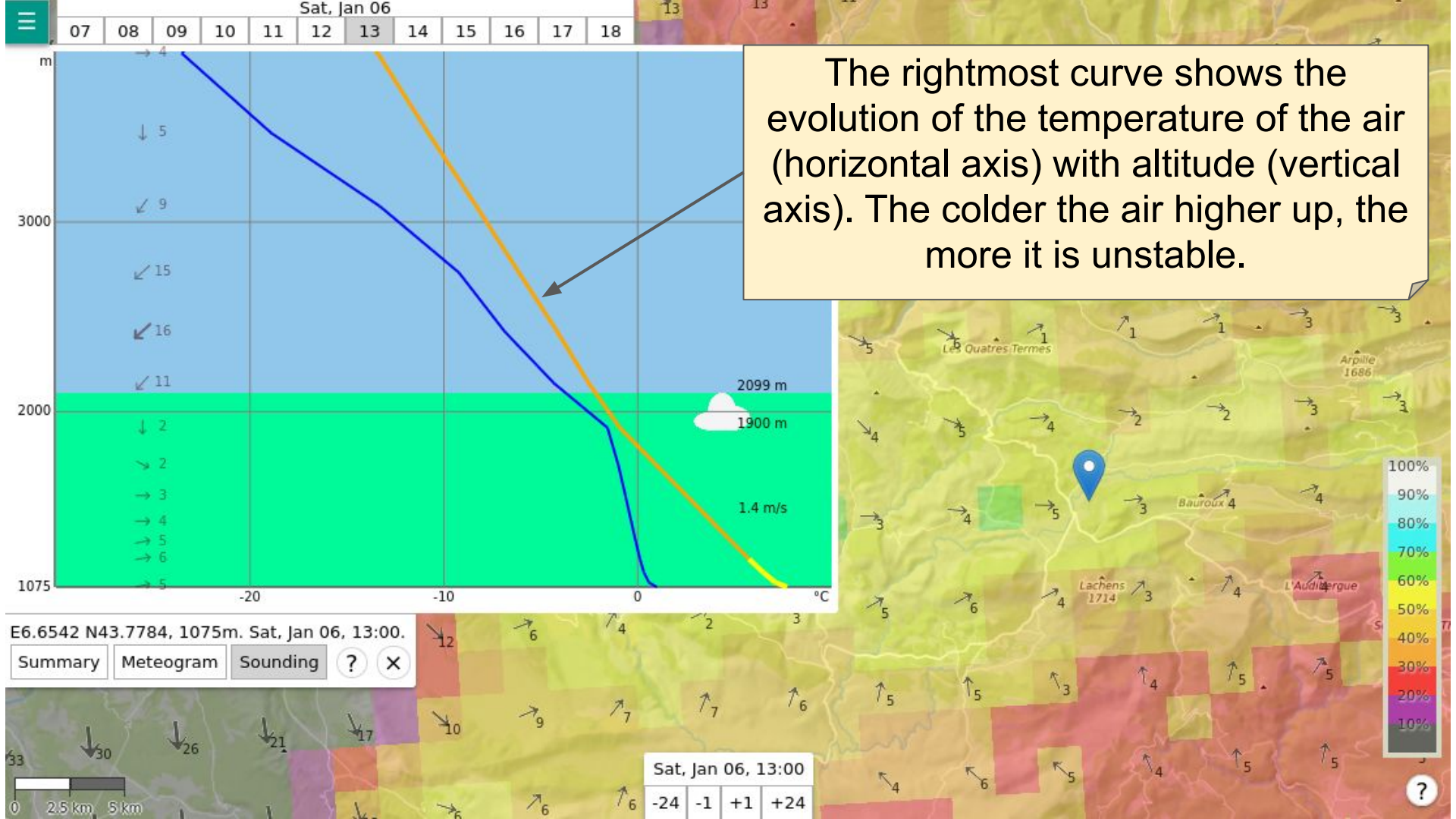
Photo de Ruben Leija sur Unsplash

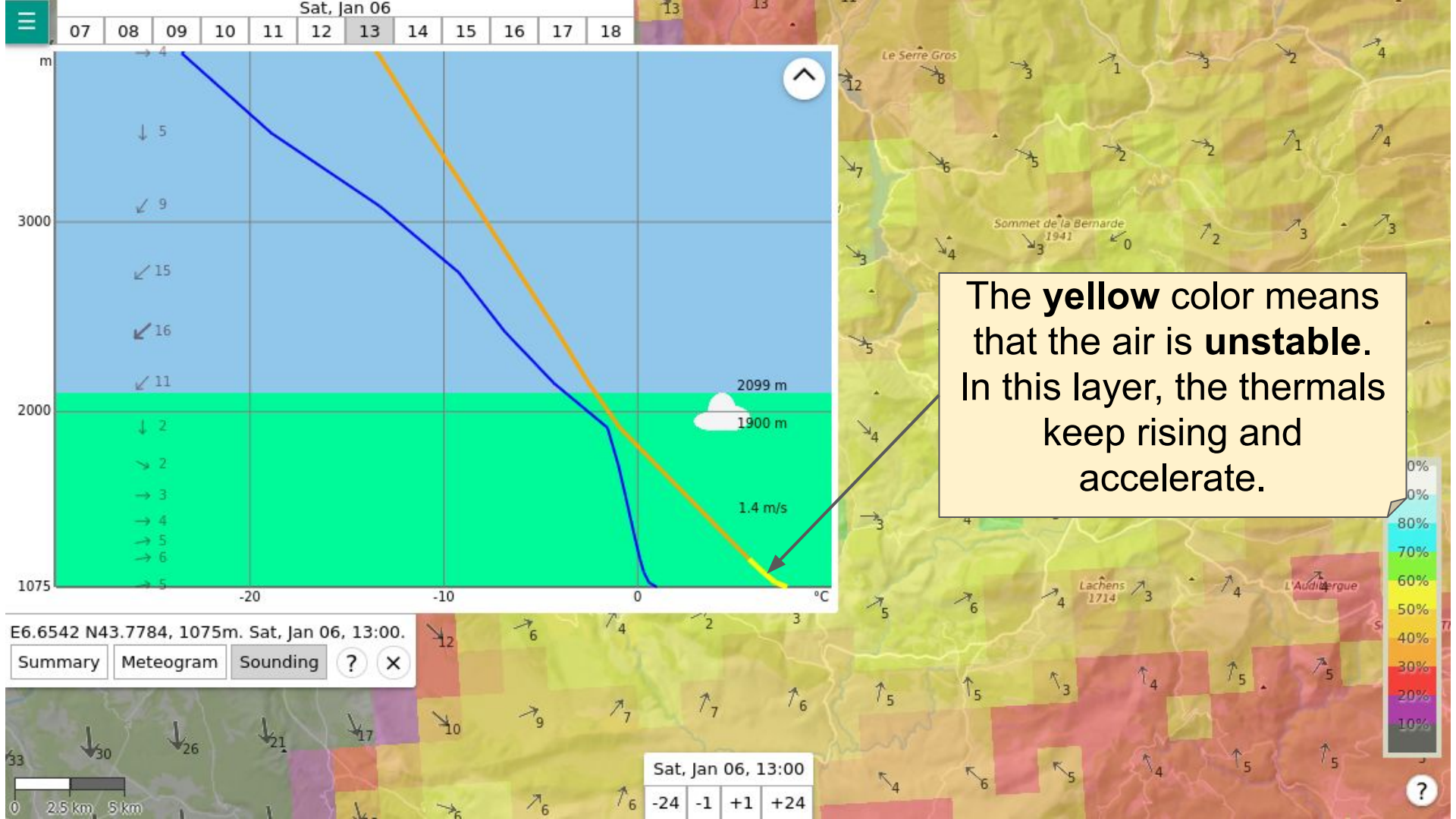
Photo de Ben Hershey sur Unsplash

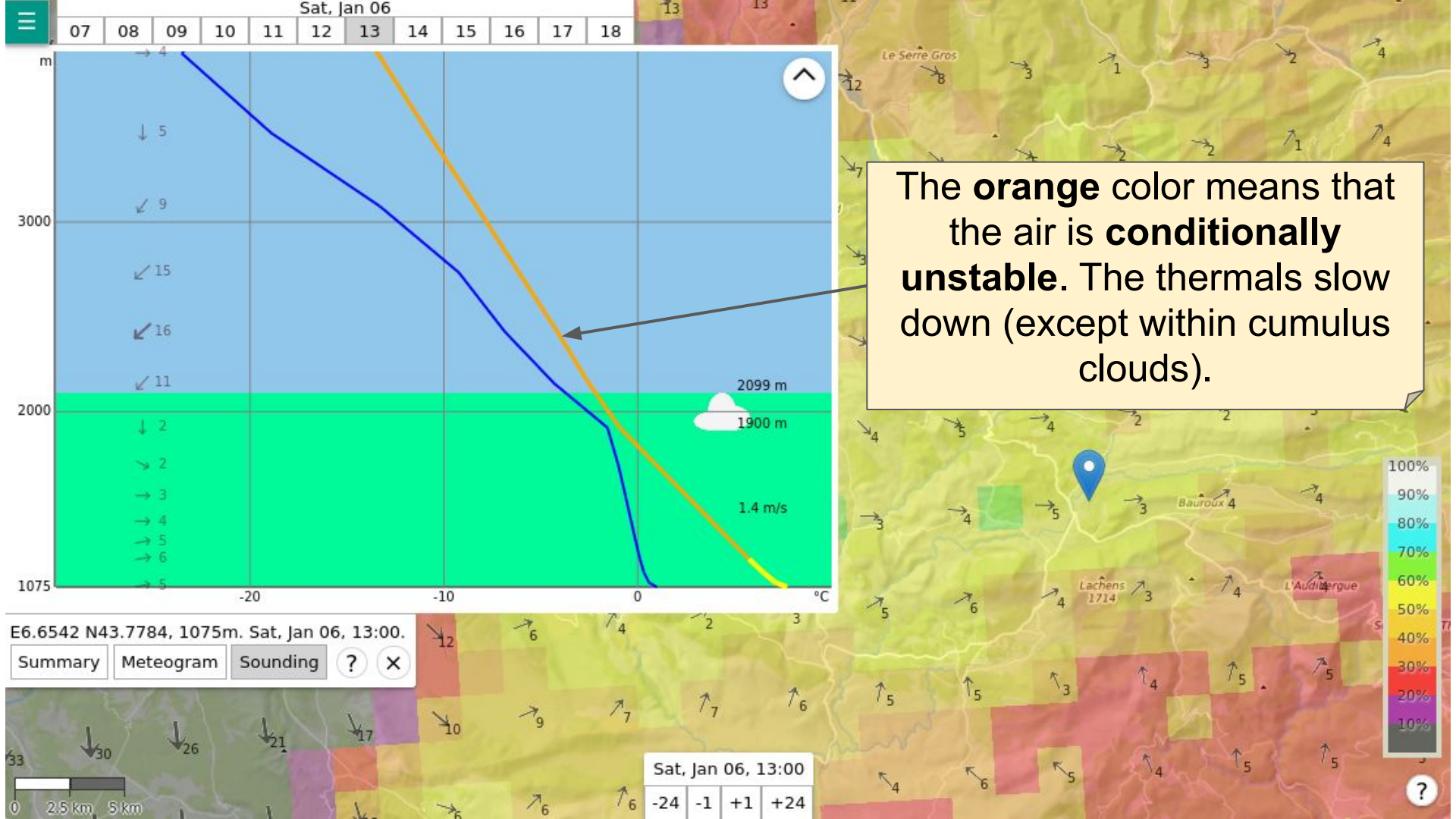
What is the atmosphere instability?



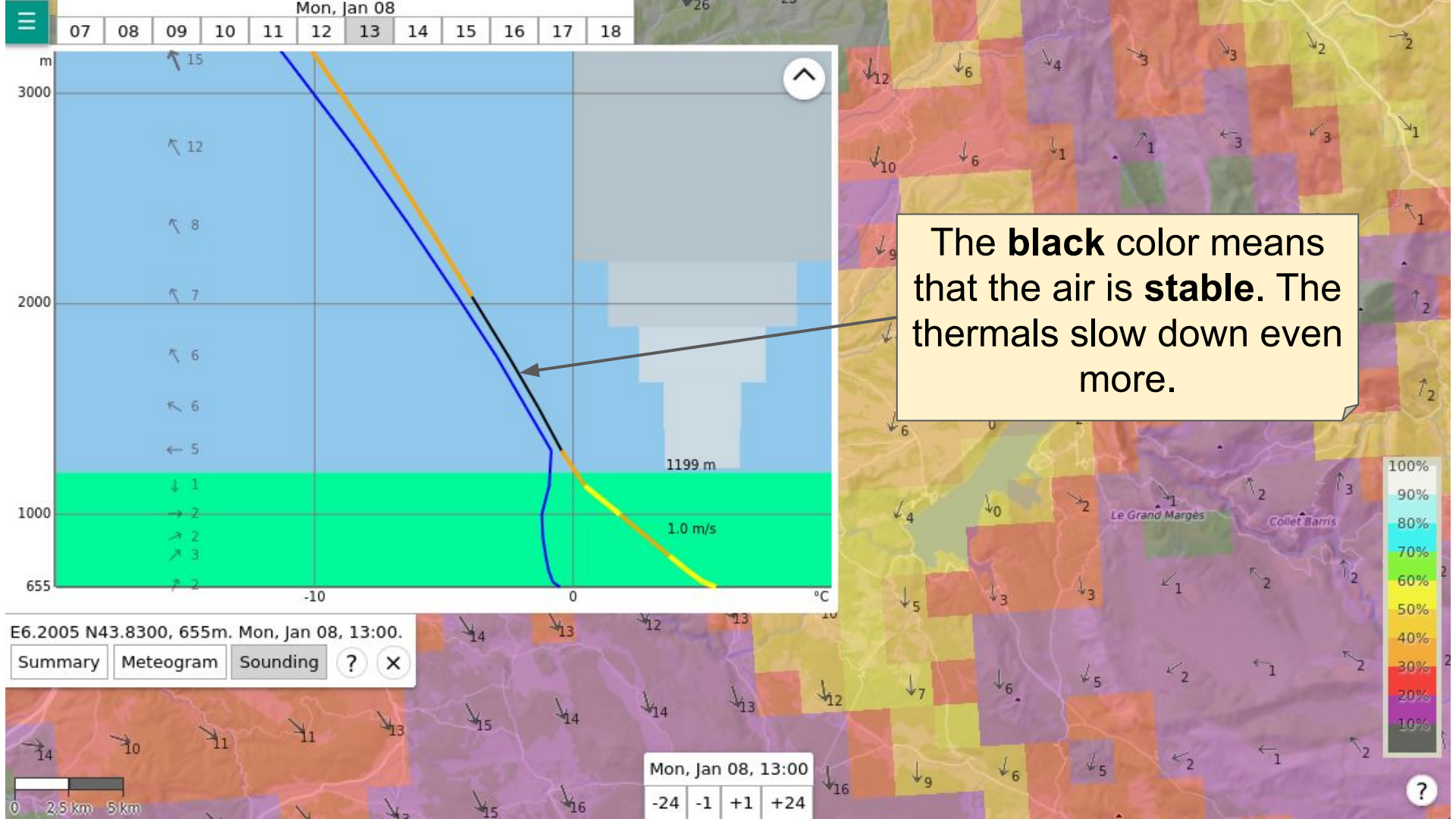

The sounding diagram shows the temperature of the air higher up at one location and time
Sat, Jan 06
07 08 09 10 11 12 13 14 15 16 17 18
m
3000
2000
1075
2099 m
1900 m
1.4 m/s
-20
-10
0
°C
E6.6542 N43.7784, 1075m. Sat, Jan 06, 13:00.
Summary
Meteogram
Sounding
Sat, Jan 06, 13:00
-24 -1 +1 +24
0 2.5 km 5 km
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
Sommet de la Bernarde 1941
Les Quatres Termes
Arpille 1686
Bauroux
Lachens 1714
L'Audibergue

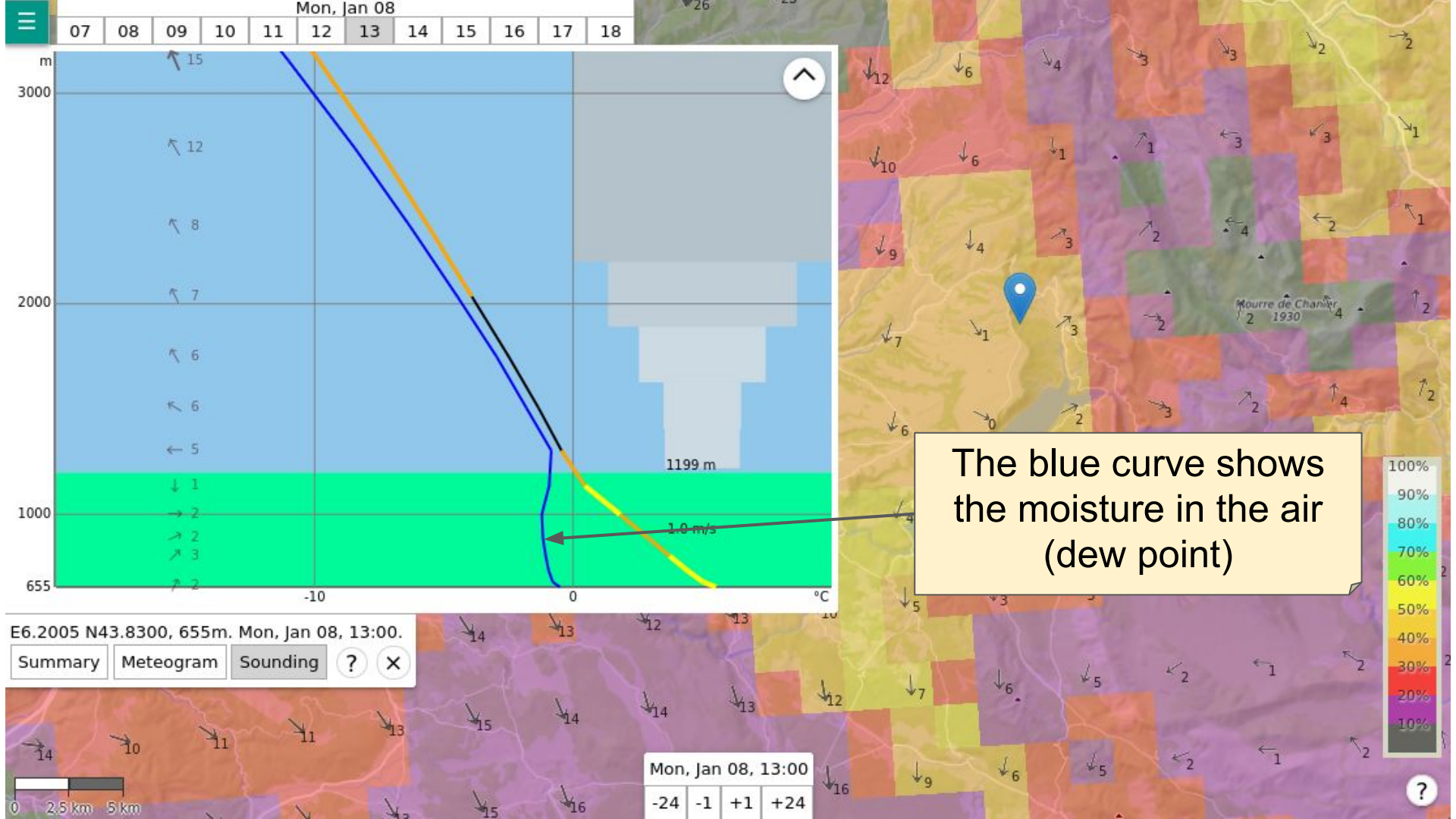

Sat, Jan 06
07 08 09 10 11 12 13 14 15 16 17 18
m
3000
2000
1075
2099 m
1900 m
1.4 m/s
-20
-10
0
°C
E6.6542 N43.7784, 1075m. Sat, Jan 06, 13:00.
Summary
Meteogram
Sounding
Sat, Jan 06, 13:00
-24 -1 +1 +24
0 2.5 km 5 km
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
Les Quatres Termes
Arpille 1686
Bauroux
Lachens 1714
L'Audibergue
The rightmost curve shows the evolution of the temperature of the air (horizontal axis) with altitude (vertical axis). The colder the air higher up, the more it is unstable.

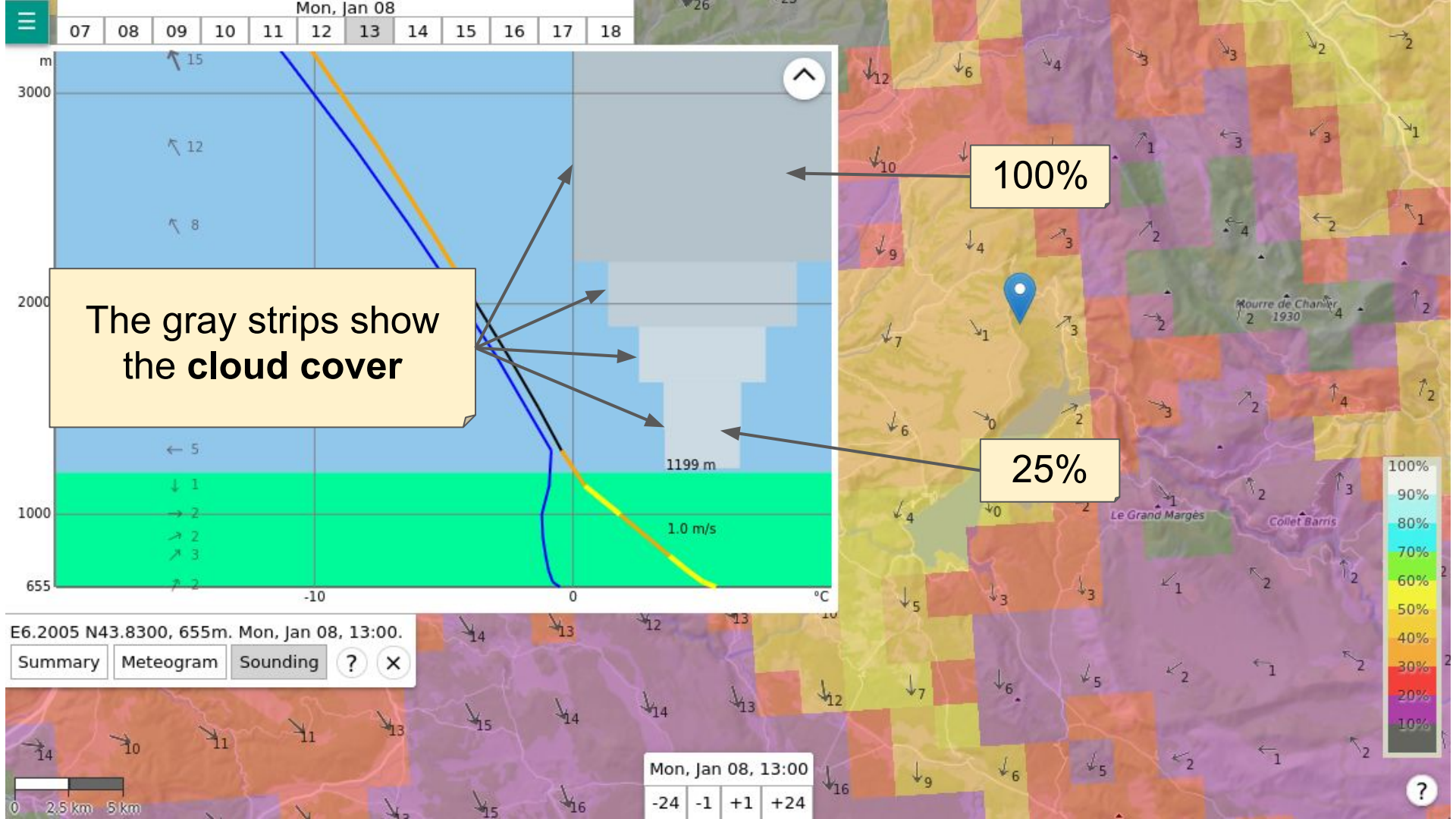

Sat, Jan 06
07 08 09 10 11 12 13 14 15 16 17 18
m
3000
2000
1075
2099 m
1900 m
1.4 m/s
-20
-10
0
°C
E6.6542 N43.7784, 1075m. Sat, Jan 06, 13:00.
Summary
Meteogram
Sounding
Sat, Jan 06, 13:00
-24 -1 +1 +24
Le Serre Gros
Sommet de la Bernarde
1941
Lachens
1714
L'Audibergue
0 2.5 km 5 km
The **yellow** color means that the air is **unstable**. In this layer, the thermals keep rising and accelerate.

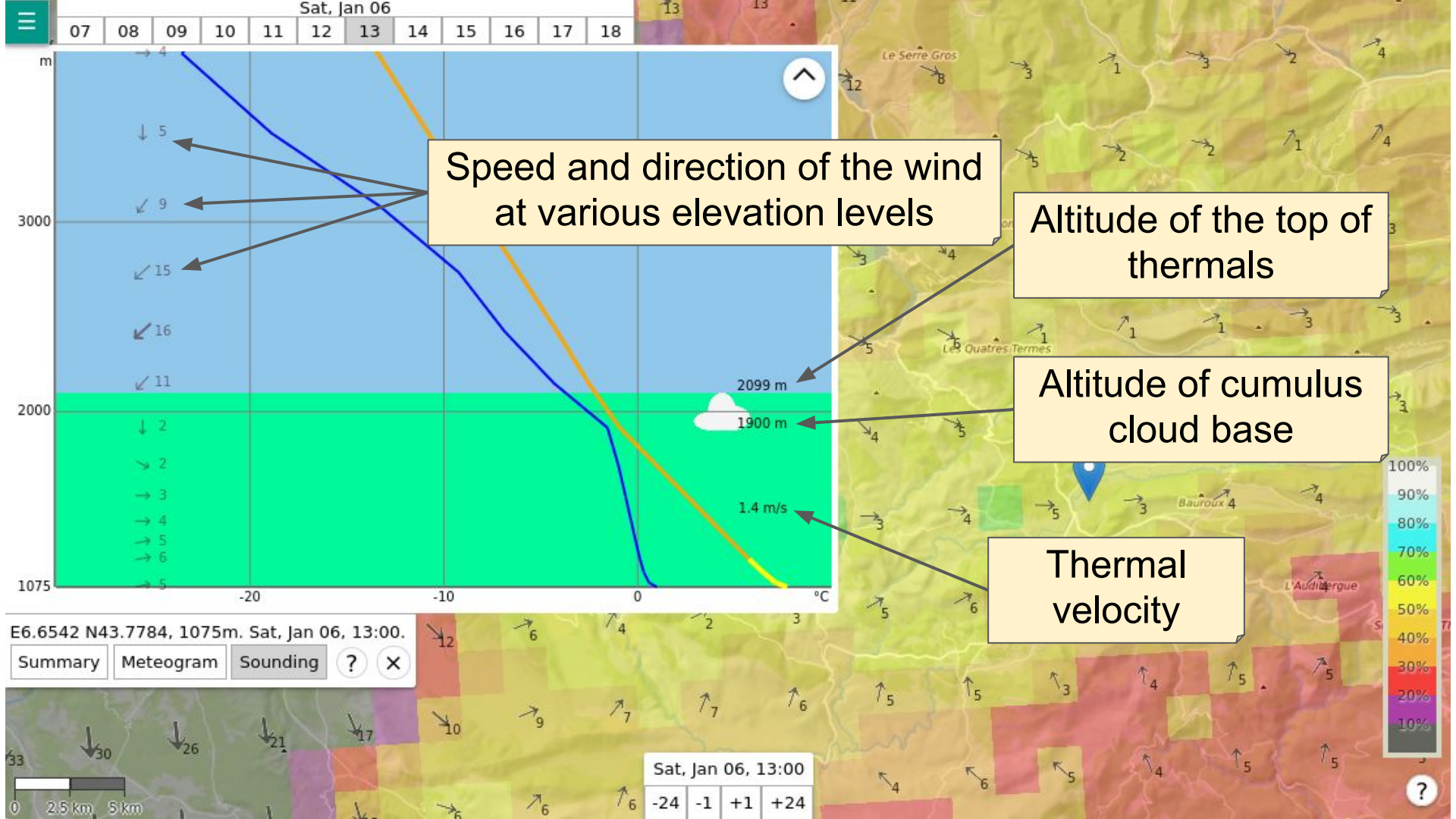


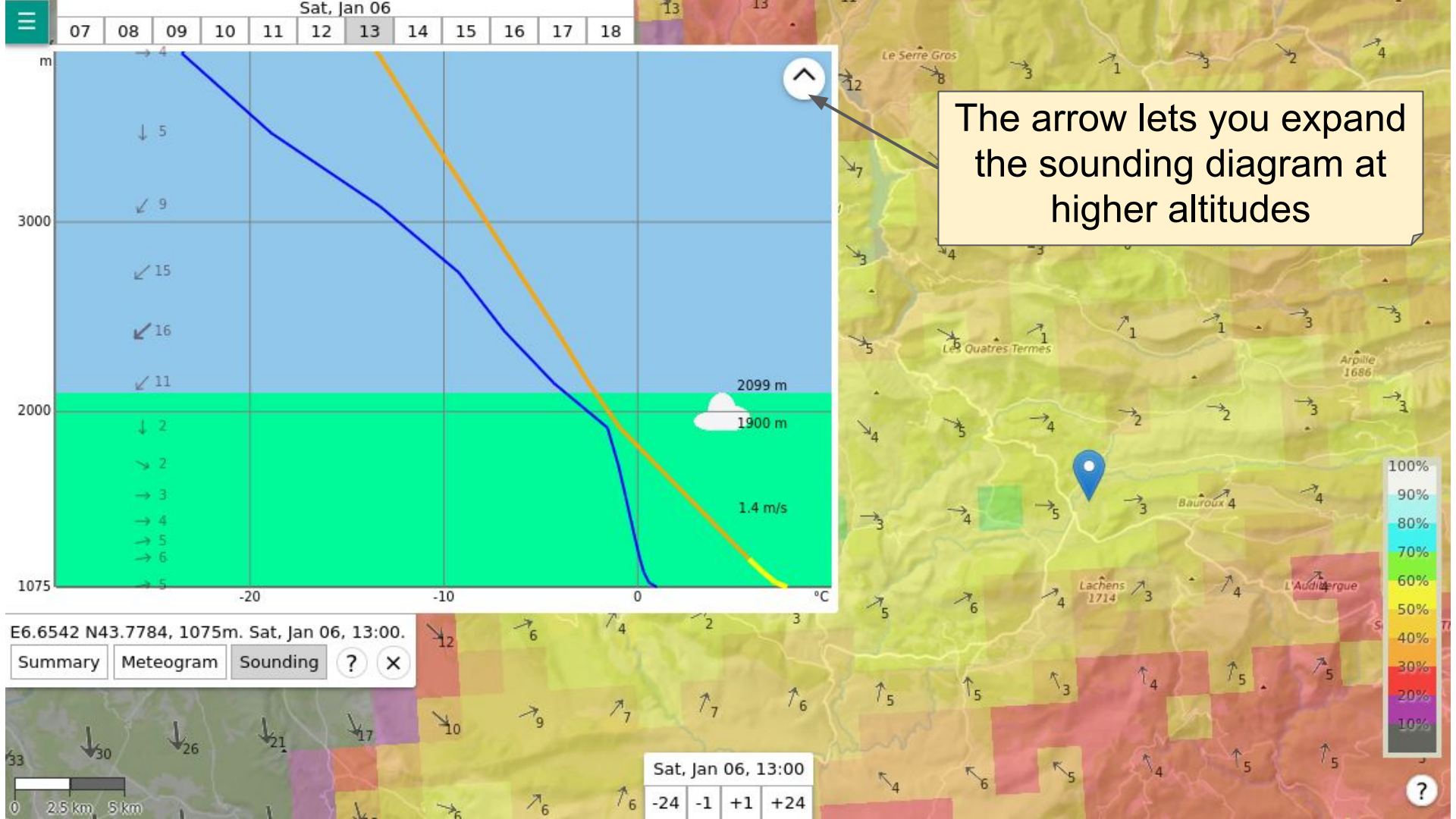
The **orange** color means that the air is **conditionally unstable**. The thermals slow down (except within cumulus clouds).

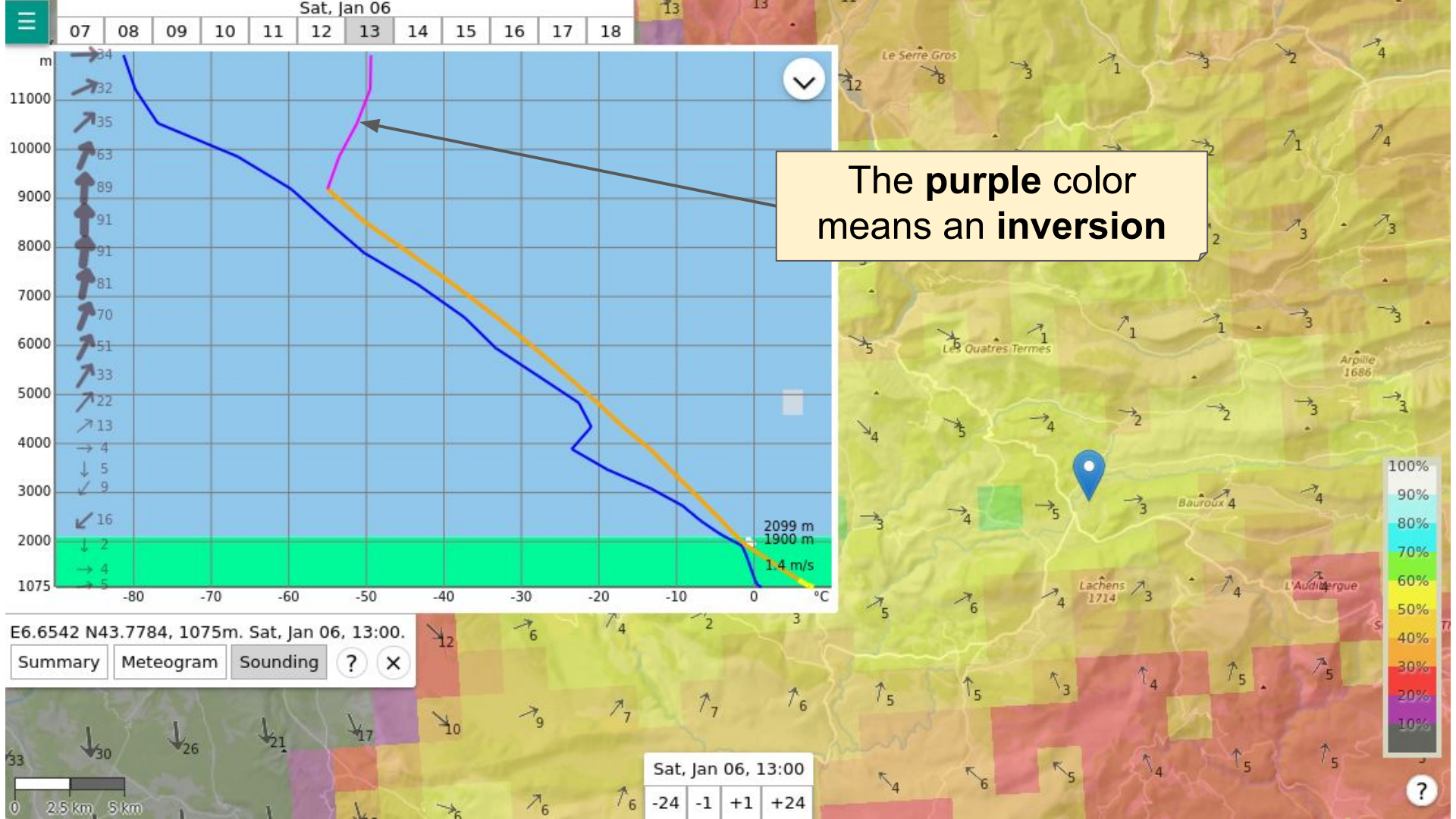

Mon, Jan 08
07 08 09 10 11 12 13 14 15 16 17 18
m
3000
2000
1000
655
15
12
8
7
6
6
5
1
2
2
3
2
1199 m
1.0 m/s
-10
0
°C
The **black** color means that the air is **stable**. The thermals slow down even more.
E6.2005 N43.8300, 655m. Mon, Jan 08, 13:00.
Summary
Meteogram
Sounding
?
×
Mon, Jan 08, 13:00
-24 -1 +1 +24
0 2.5 km 5 km
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
Le Grand Margès
Collet Barris
?


Mon, Jan 08
07 08 09 10 11 12 13 14 15 16 17 18
m
3000
2000
1000
655
1199 m
1.0 m/s
-10
0
°C
The blue curve shows the moisture in the air (dew point)
E6.2005 N43.8300, 655m. Mon, Jan 08, 13:00.
Summary
Meteogram
Sounding
Mon, Jan 08, 13:00
-24 -1 +1 +24
0 2.5 km 5 km
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%


Mon, Jan 08
07 08 09 10 11 12 13 14 15 16 17 18
m
3000
2000
1000
655
15
12
8
5
1
2
2
3
2
1199 m
1.0 m/s
-10
0
°C
The gray strips show the **cloud cover**
100%
25%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
E6.2005 N43.8300, 655m. Mon, Jan 08, 13:00.
Summary
Meteogram
Sounding
?
×
Mon, Jan 08, 13:00
-24 -1 +1 +24
0 2.5 km 5 km
Le Grand Margès
Collet Barris
Rourre de Chanier
1930
?


Sat, Jan 06
07 08 09 10 11 12 13 14 15 16 17 18
m
3000
2000
1075
-20
-10
0
°C
2099 m
1900 m
1.4 m/s
Speed and direction of the wind at various elevation levels
Altitude of the top of thermals
Altitude of cumulus cloud base
Thermal velocity
E6.6542 N43.7784, 1075m. Sat, Jan 06, 13:00.
Summary
Meteogram
Sounding
Sat, Jan 06, 13:00
-24 -1 +1 +24
0 2.5 km 5 km
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%


Sat, Jan 06
07 08 09 10 11 12 13 14 15 16 17 18
m
3000
2000
1075
-20
-10
0
°C
2099 m
1900 m
1.4 m/s
The arrow lets you expand the sounding diagram at higher altitudes
E6.6542 N43.7784, 1075m. Sat, Jan 06, 13:00.
Summary
Meteogram
Sounding
Sat, Jan 06, 13:00
-24 -1 +1 +24
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
Le Serre Gros
Les Quatres Termes
Bauroux
Lachens 1714
L'Audibergue
Arpille 1686
0 2.5 km 5 km


Sat, Jan 06
07 08 09 10 11 12 13 14 15 16 17 18
m
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1075
-80 -70 -60 -50 -40 -30 -20 -10 0 °C
2099 m
1900 m
1.4 m/s
The **purple** color means an **inversion**
E6.6542 N43.7784, 1075m. Sat, Jan 06, 13:00.
Summary
Meteogram
Sounding
Sat, Jan 06, 13:00
-24 -1 +1 +24
0 2.5 km 5 km
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
Le Serre Gros
Les Quatres Termes
Bauroux
Lachens 1714
L'Audibergue
Arpille 1686

Conclusion

- Soaringmeteo provides two types of weather forecasts
  - Mid-range (8 days), 25 km of resolution (GFS model)
  - Short-range (2 days), 2 km of resolution (WRF model)
- Taking into account the model resolution helps interpret the forecast results
- Soaringmeteo estimates the “thermal quality” (in %) based on
  - the height of thermals,
  - the ground heating,
  - and the wind speed
- The “thermal quality” formula is designed for flying with paragliders in the mountains (for now)

Conclusion

- The **map** shows the forecast at a specific time in several locations, it helps decide **where** to fly
- The **meteogram** shows the forecast at a specific location over several hours/days, it helps decide **when** to fly
- The **sounding diagram** shows the instability of the atmosphere at a specific location and time

Feedback

- What are your expectations regarding Soaringmeteo?
- Do you have any suggestions?

Groupe Telegram
(feedback, news, …)