



Union Glacier – Belgrano II air drop

Introduction

- Introduction to ALE
- ALE's network of automatic weather stations
- Aviation at Union Glacier
- Air drop Belgrano II



Introduction to ALE

- Antarctic Logistics and Expeditions is one of the two privately operating organisations in Antarctica
- ALE supports and organises **private expeditions, visits to penguin colonies and South Pole station, Vinson climbs,**
- ALE supports other national programs: Chile, Brasil, Argentina, United States,.....



Head quarters – Salt Lake City

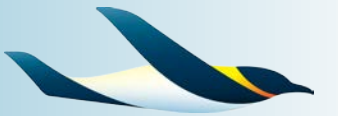
- the year round office is situated in Salt Lake City, Utah
- staffing, finance, marketing, development meetings,...
- workshop – designing and building of our moveable structures (pic)











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Seasonal office – Punta Arenas

- from october till february the PA office is operational
- welcome to clients and briefings about Antarctic policies (400-450)
- training sessions for new staff (60-70)
- ALE's I176 is based at the Punta Arenas airport





UR-17601

Air Almaty

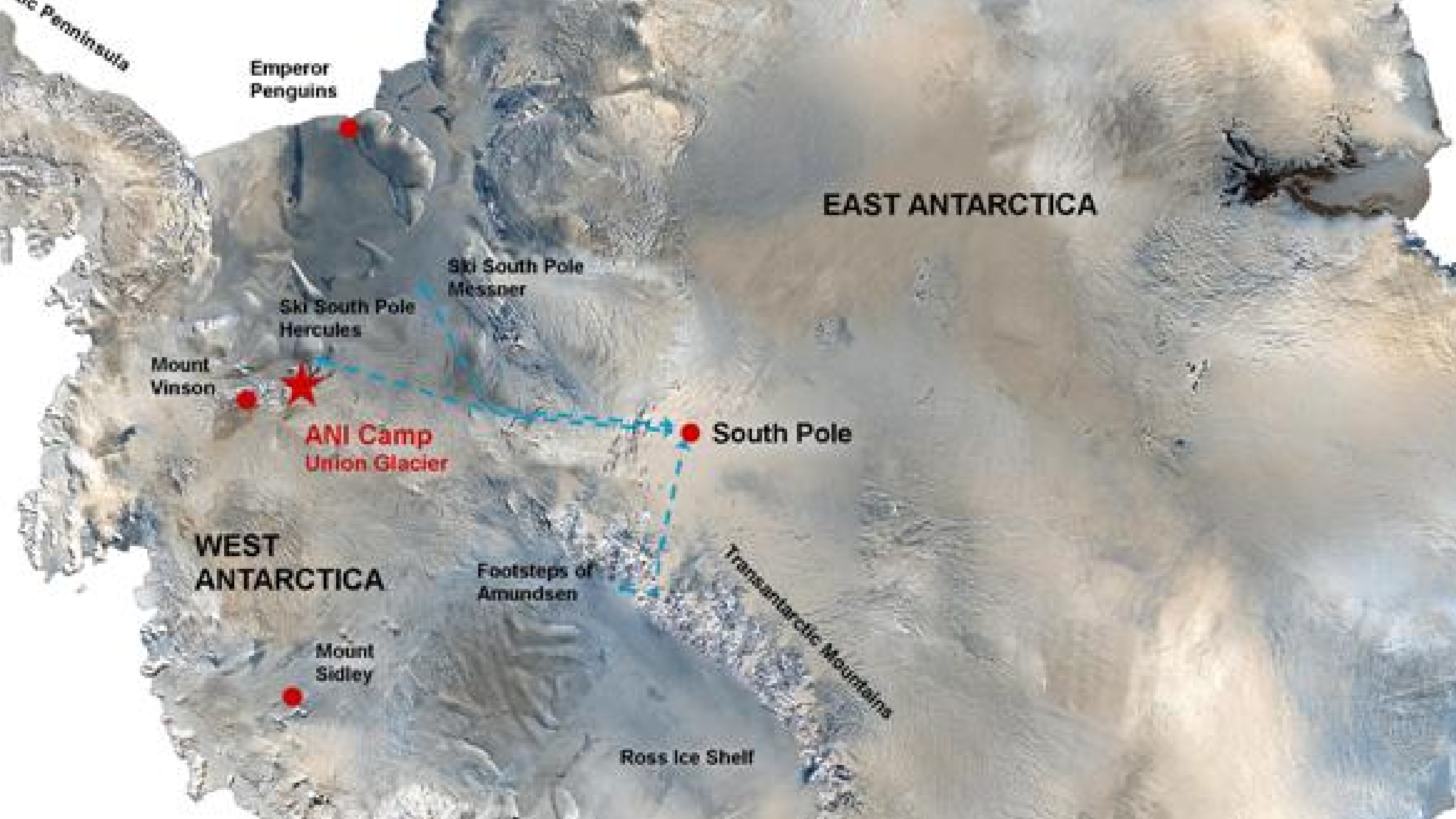
ИЛ-76ТД

ALE

Union Glacier

- ALE's base camp in Antarctica
- situated just South of the Ronne Ice Shelf (map)





Emperor Penguins

EAST ANTARCTICA

Ski South Pole Messner

Ski South Pole Hercules

Mount Vinson

ANI Camp
Union Glacier

South Pole

WEST ANTARCTICA

Footsteps of Amundsen

Mount Sidley

Transantarctic Mountains

Ross Ice Shelf

Union Glacier

- ALE's base camp in Antarctica
- situated South of the Ronne Ice Shelf (map)
- flight PA to UG: 4h30 (pic)





Union Glacier

- ALE's base camp in Antarctica
- situated South of the Ronne Ice Shelf (map)
- flight PA to UG: 4h30 (pic)
- blue ice runway is 4k long and 80m wide (pic)

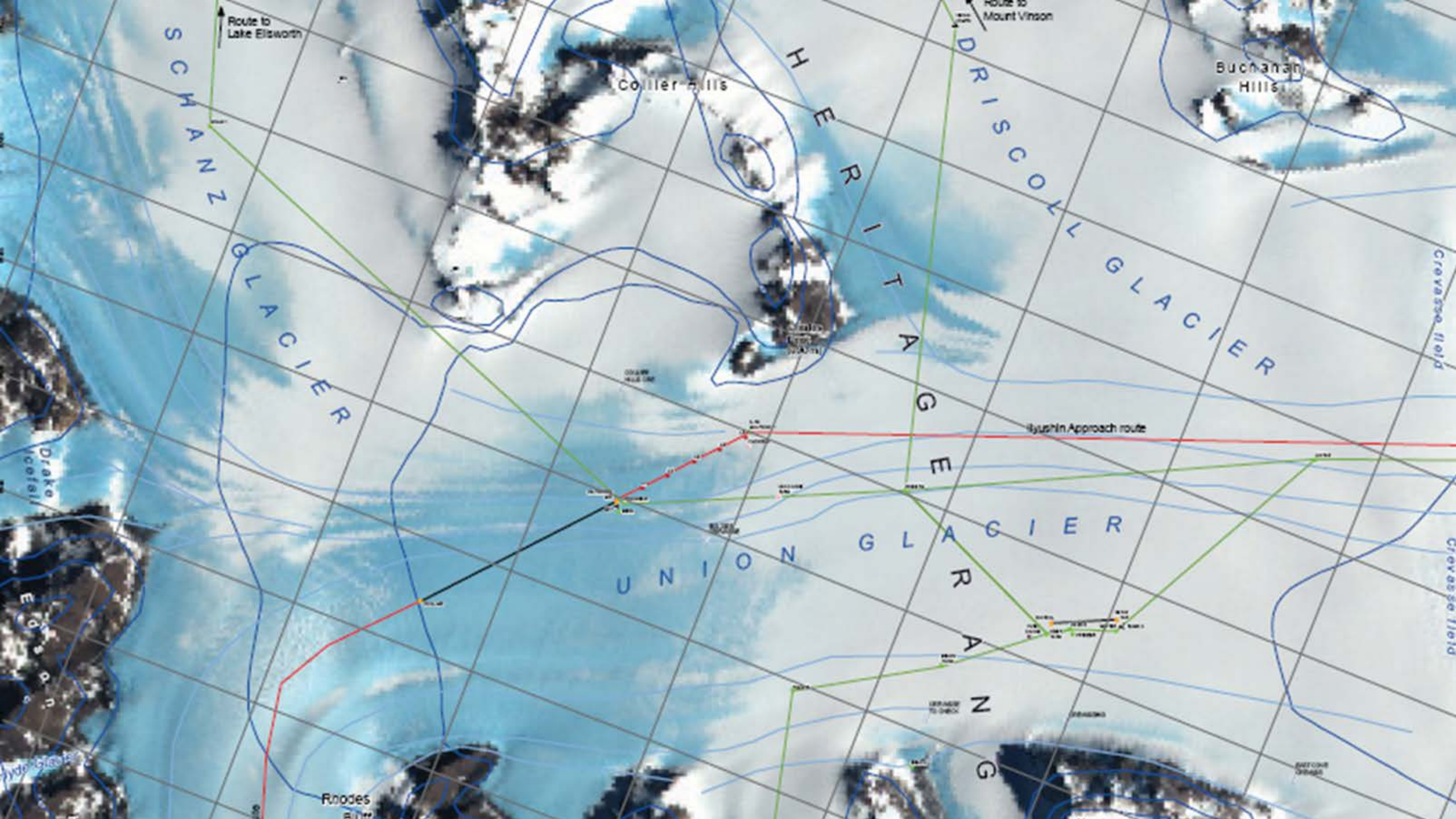




Union Glacier

- ALE's base camp in Antarctica
- situated South of the Ronne Ice Shelf (map)
- flight PA to UG: 4h30 (pic)
- blue ice runway is 4k long and 80m wide (pic)
- distance runway/camp: 8km (map)





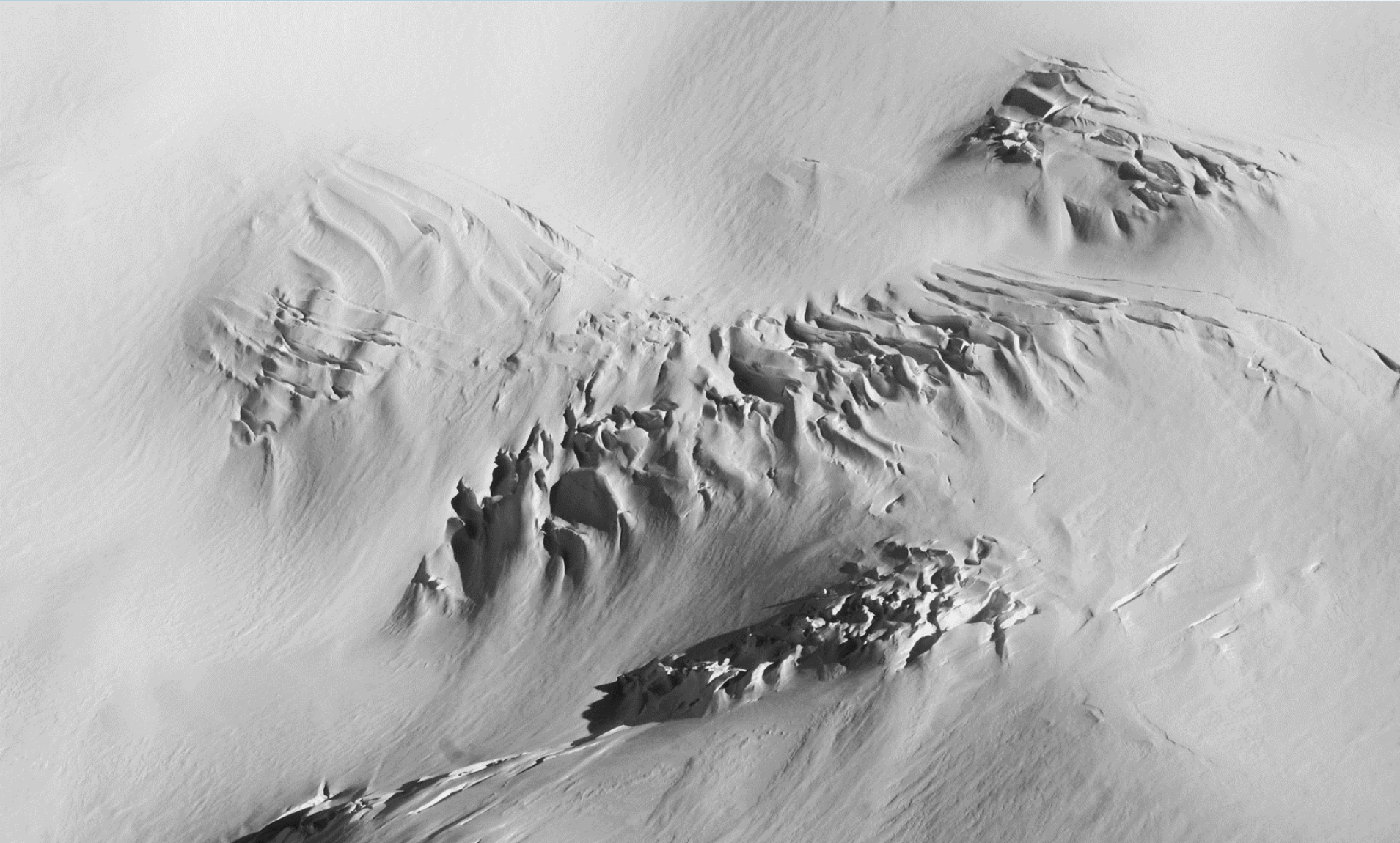


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Union Glacier is a...



Union Glacier is a...glacier





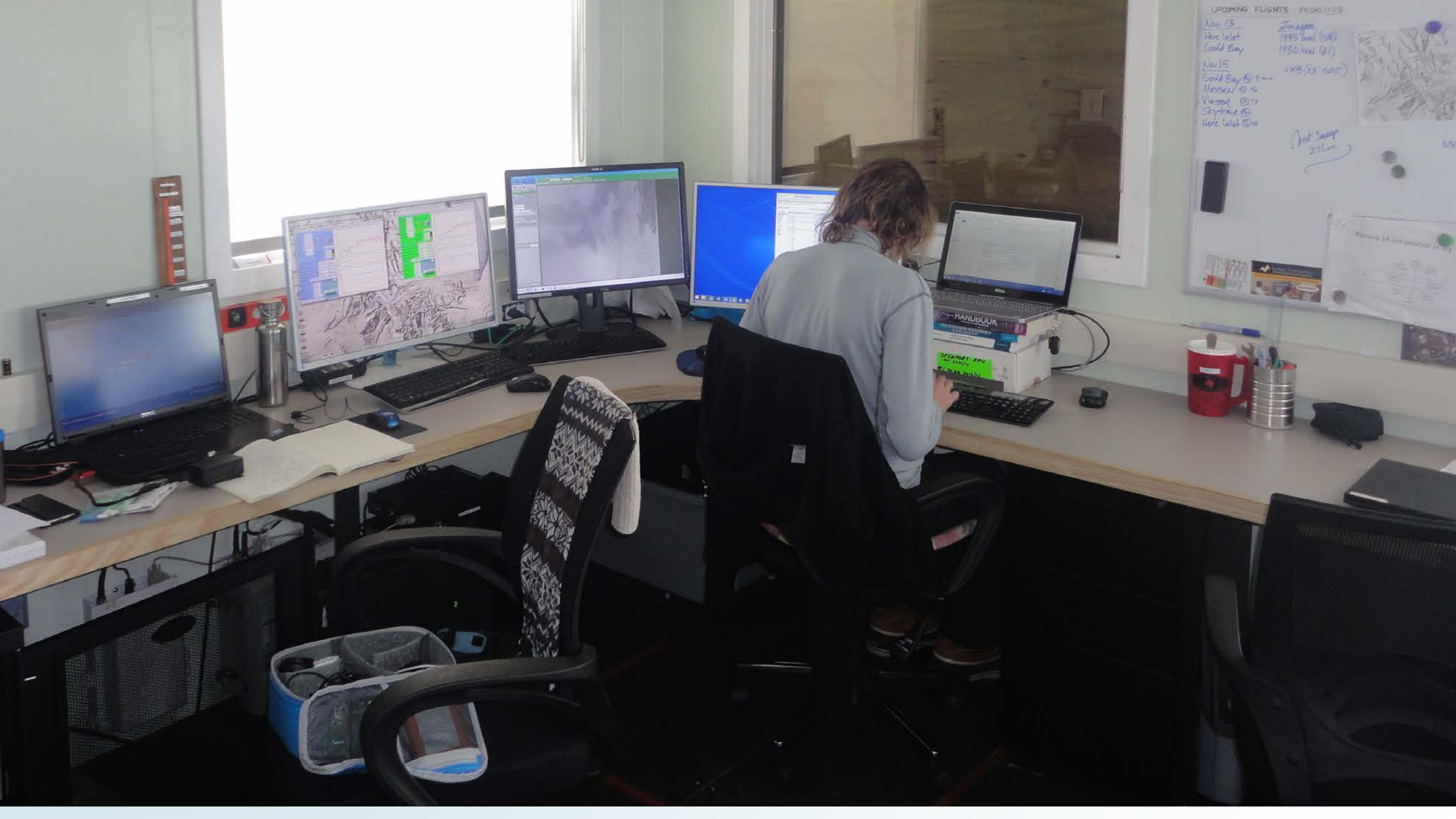
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UPCOMING FLIGHTS - PRIORITIES

Nov 15:	Eagle Bay @ 9:00	Mersel @ 9:40	Vinson @ 10:15	Skipton @ 10:40	Hurd West @ 11:00
Nov 16:	Hurd West @ 10:00	Eagle Bay @ 10:30	Vinson @ 11:00	Skipton @ 11:30	Hurd West @ 12:00
Nov 17:	Hurd West @ 10:00	Eagle Bay @ 10:30	Vinson @ 11:00	Skipton @ 11:30	Hurd West @ 12:00

Next Day 21:00

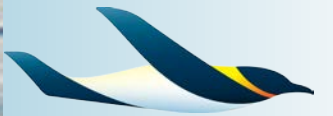
Automatic Weather Stations

- **WX 7 (installed 2007)**
- WX 8 (installed 2008)
- WX 11 (installed 2011)
- WX 12 (installed 2012)
- WX 14 (installed 2014)





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|A|L|E|

Wireless link between WX7 and comms box



Automatic Weather Stations

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Thiels Corner





Latest from Wx8 @ Thiels

Images and weather are taken at the top of every hour.

Sun Jan 15 21:02:43 UTC 2012



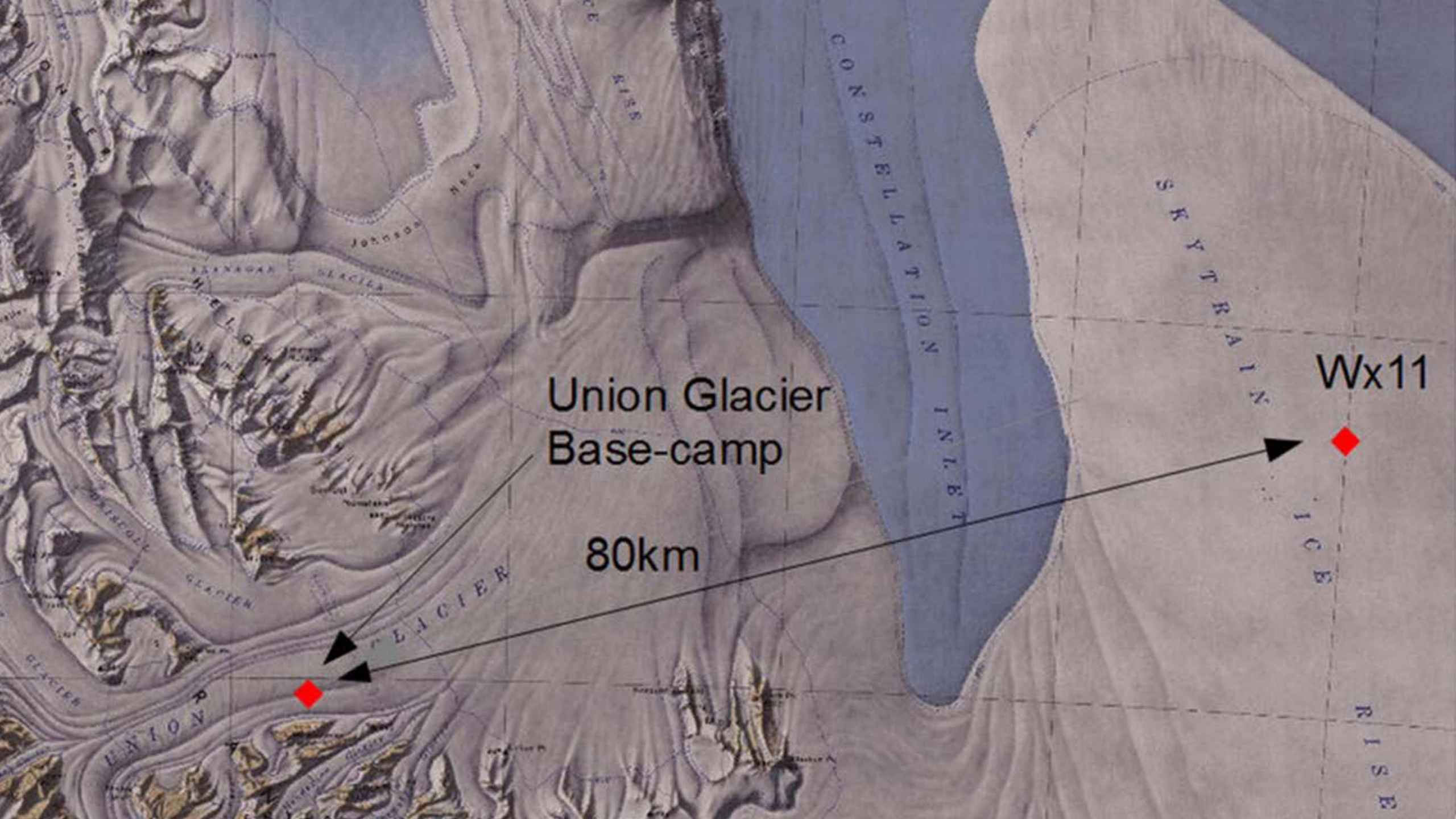
Wind direction = 182 deg true Wind speed = 10.64 kts Wind gust = 12.16 kts

**Air temperature -16.4 C Humidity = 64.2 %_Pressure = 804.7 hPa
Battery = 13.6 V Current = 0.192 A PCB Temp = 5.6 C Solar = 0.000 V**

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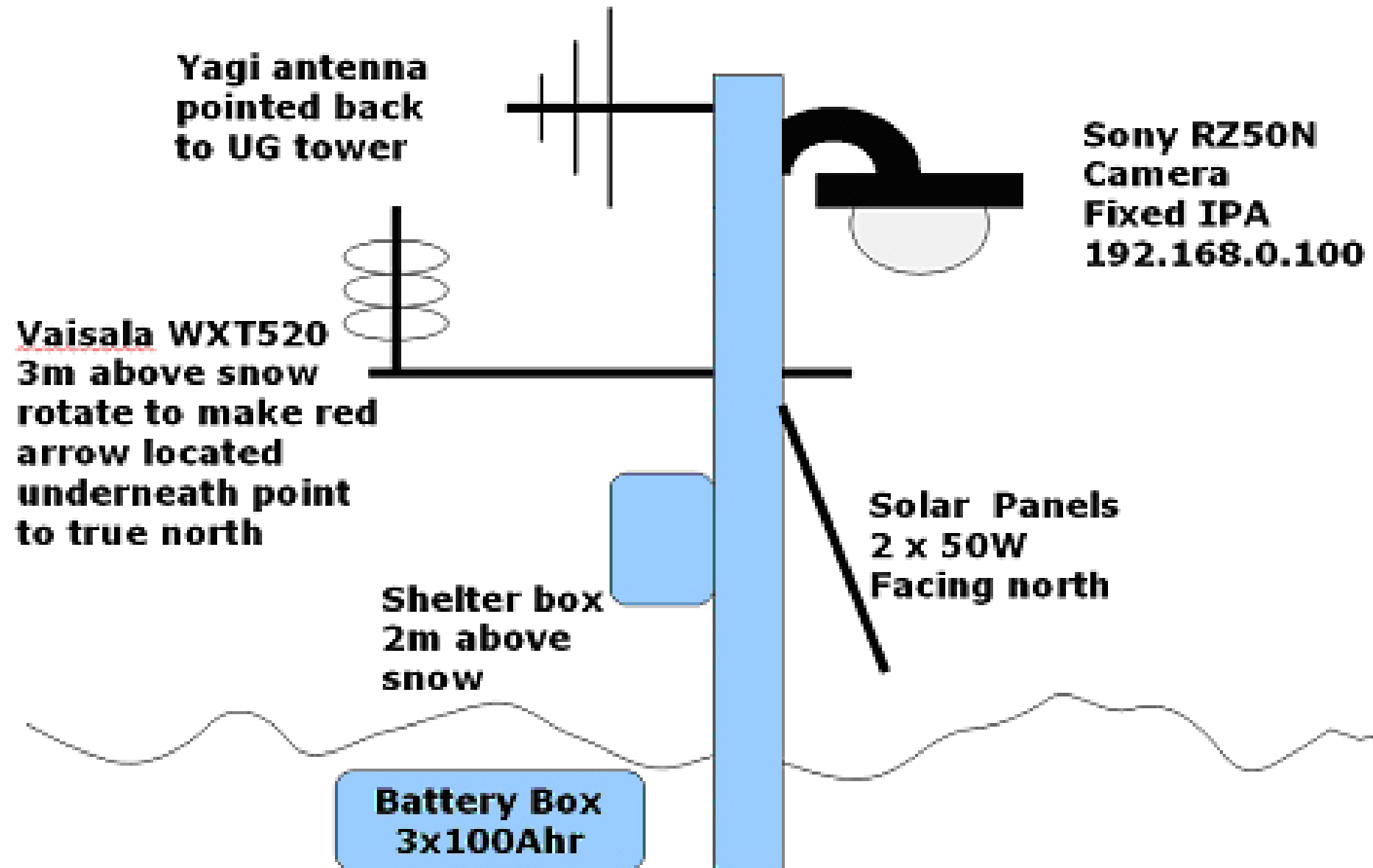
Union Glacier
Base-camp

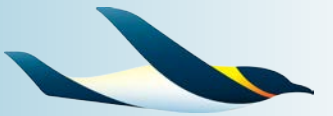
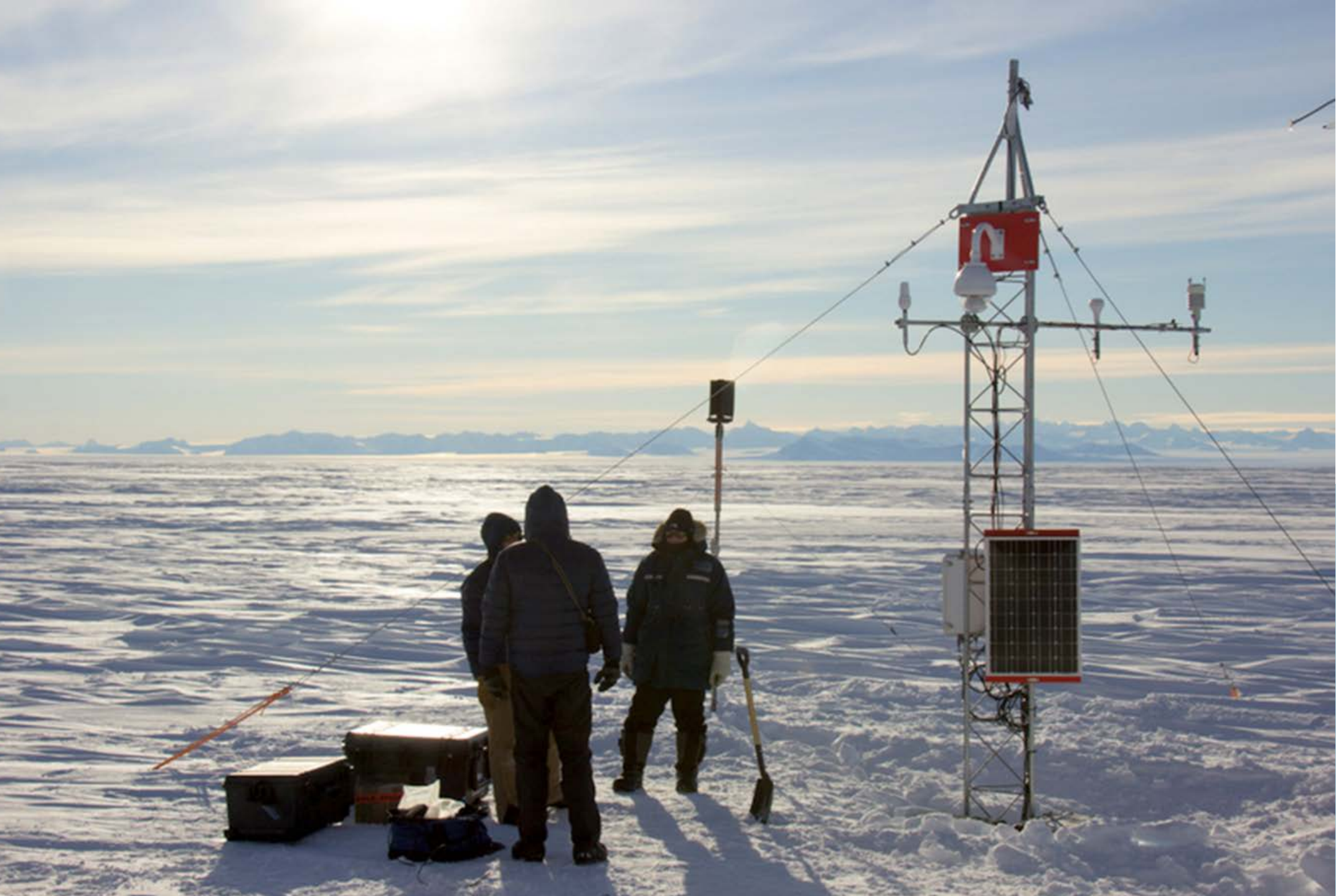
80km

Wx11



Wx11 @ components





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- WX 14 (installed 2014)



Wx12, UG-Runway
GPS Box -16.4C
Camera + 6.8C

192.168.0.24
2014-12-02
20:29:57.220



Automatic Weather Stations

- WX 7 (installed 2007)
- WX 8 (installed 2008)
- WX 11 (installed 2011)
- WX 12 (installed 2012)
- **WX 14 (installed 2014)**





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WX 14 - All sky camera



AWS on the internet

- <http://www.thistle.org/>
- <http://www.polar66.com/>



Aviation in & out Union Glacier

- **II-76 flights** between Punta Arenas – Union Glacier (ca 25 flights per season)
- **Ski aircraft operations** from UG: 2 Twin Otters and 1 Basler (Vinson Base Camp, Hercules Inlet, Gould Bay, South Pole,...)
- **Polenet (USAF)** maintenance of the geophysical observation network



Air drop – Belgrano I station



AIR DROP OPERATION

- Last February (2017) ALE finished the 3rd air drop campaign from Ushuaia to the Argentinian base Belgrano II



AIR DROP OPERATION

- Last February (2017) ALE finished the 3rd air drop campaign
- Logistically complex operation: 166 ton of cargo – mainly food and fuel for one year
- Cargo is put in pallets with parachutes in Ushuaia



AIR DROP OPERATION

- Last February (2017) ALE finished the 3rd air drop campaign
- Logistically complex operation: a total of 166 ton of cargo – mainly food and fuel
- 9 round trips between Ushuaia (Arg) - Belgrano II (Arg Base):



**Acá está la casa alojamiento
(Esta imagen es vieja)**





- USHUAIA (ARG)
- BELGRANO 2 (COATS LAND)
- 6000 KM ROUND TRIP



AIR DROP OPERATION

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- 9 round trips between Ushuaia (Arg) - Belgrano II (Arg Base):
2 drop circuits per flight – this is 20 pallets per flight





AIR DROP OPERATION

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- 9 round trips between Ushuaia (Arg) - BelgranoII (Arg Base)
- One ALE staff is on the drop zone in Belgrano:
 - hourly weather observations



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- Last February (2017) ALE finished the 3rd air drop campaign
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- 9 round trips between Ushuaia (Arg) - Belgrano II (Arg Base)
- One ALE staff is on the drop zone in Belgrano:
 - hourly weather observations
 - handling of the dropped pallets



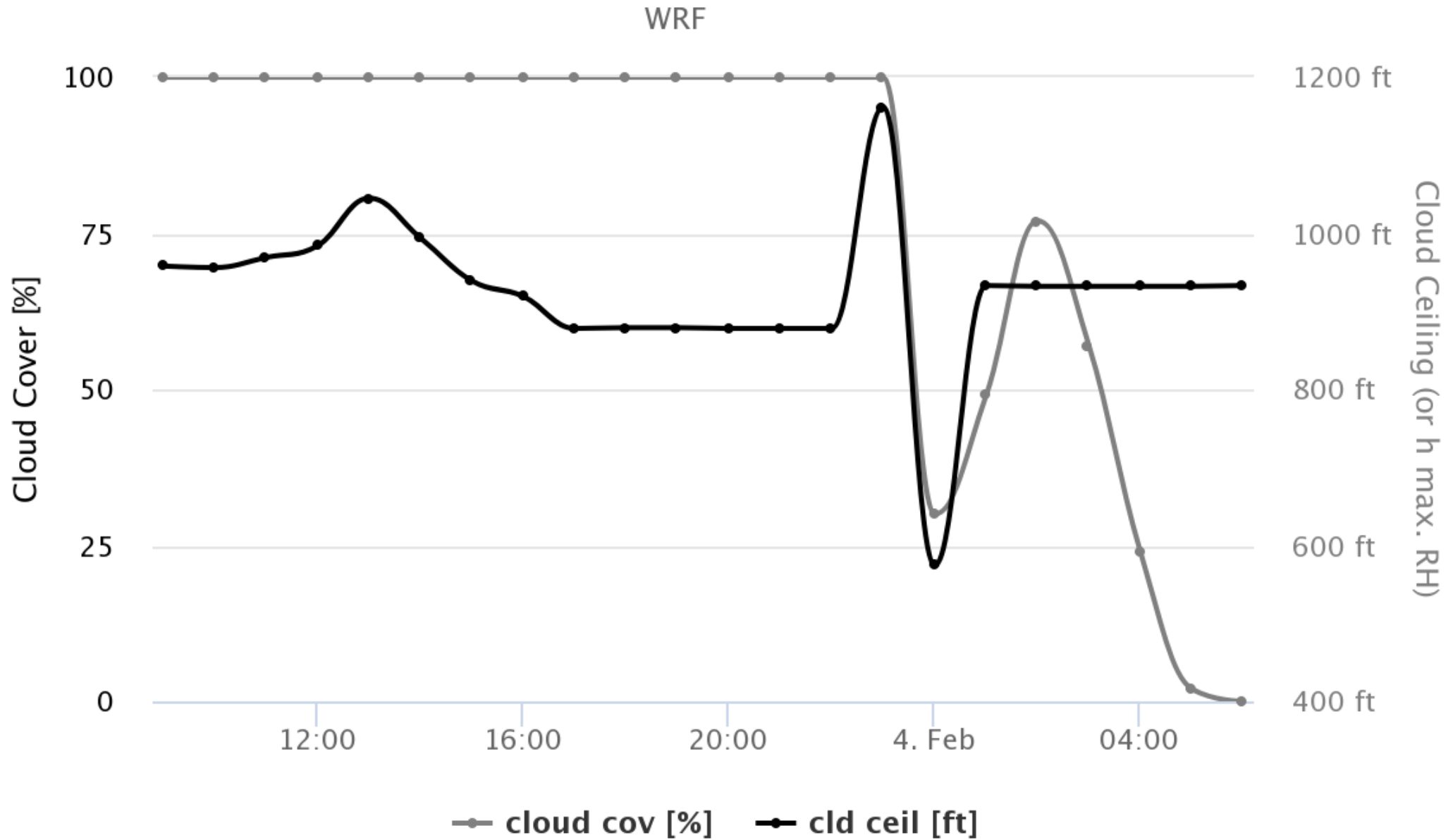


MAIN HAZARDS

- Icing during drops (risk for back door)
- Low level wind shear – turbulence
- Strong low level winds

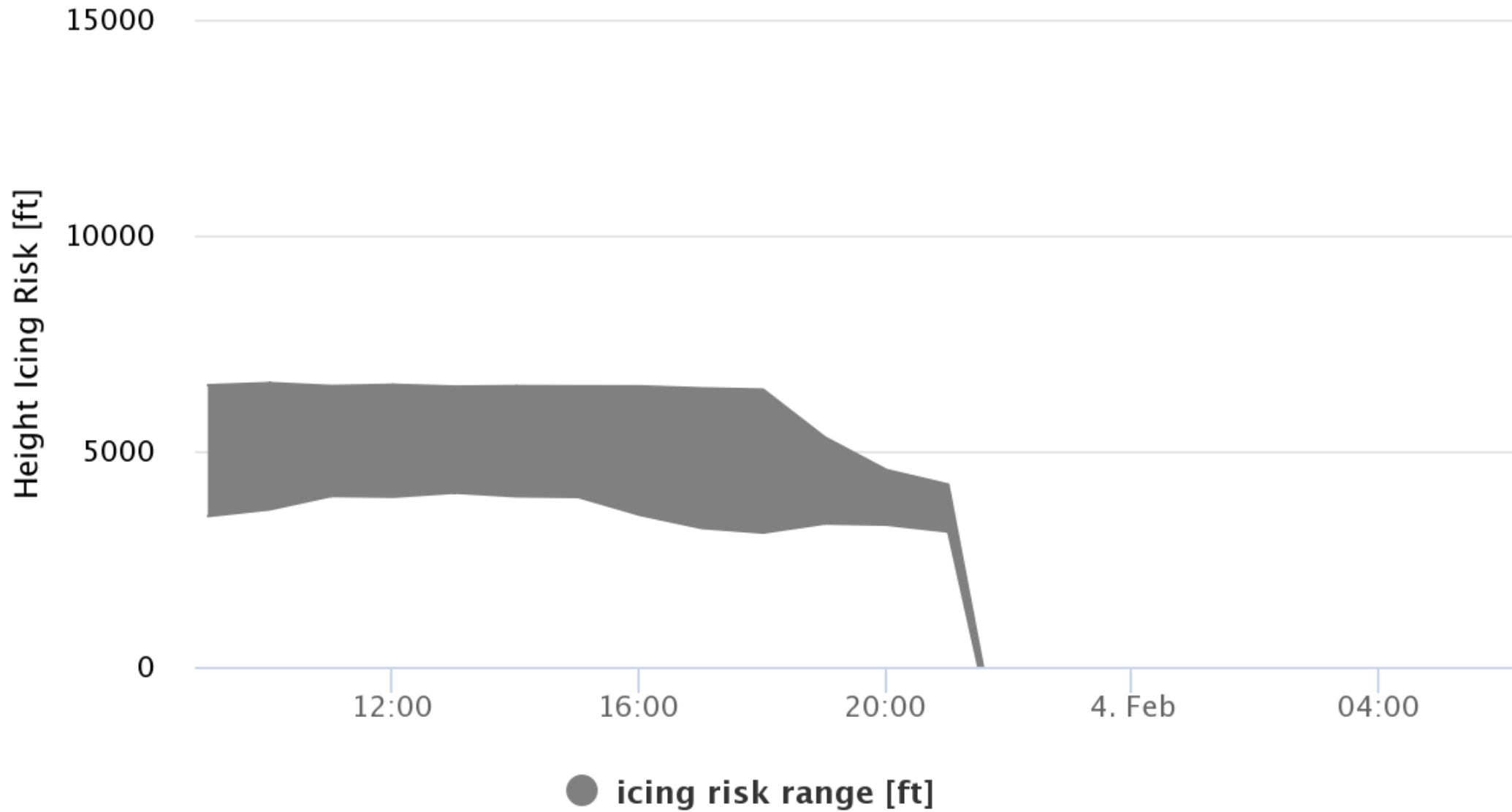


Forecast for BELG. Clouds



Forecast for BELG. Height of icing risk

WRF

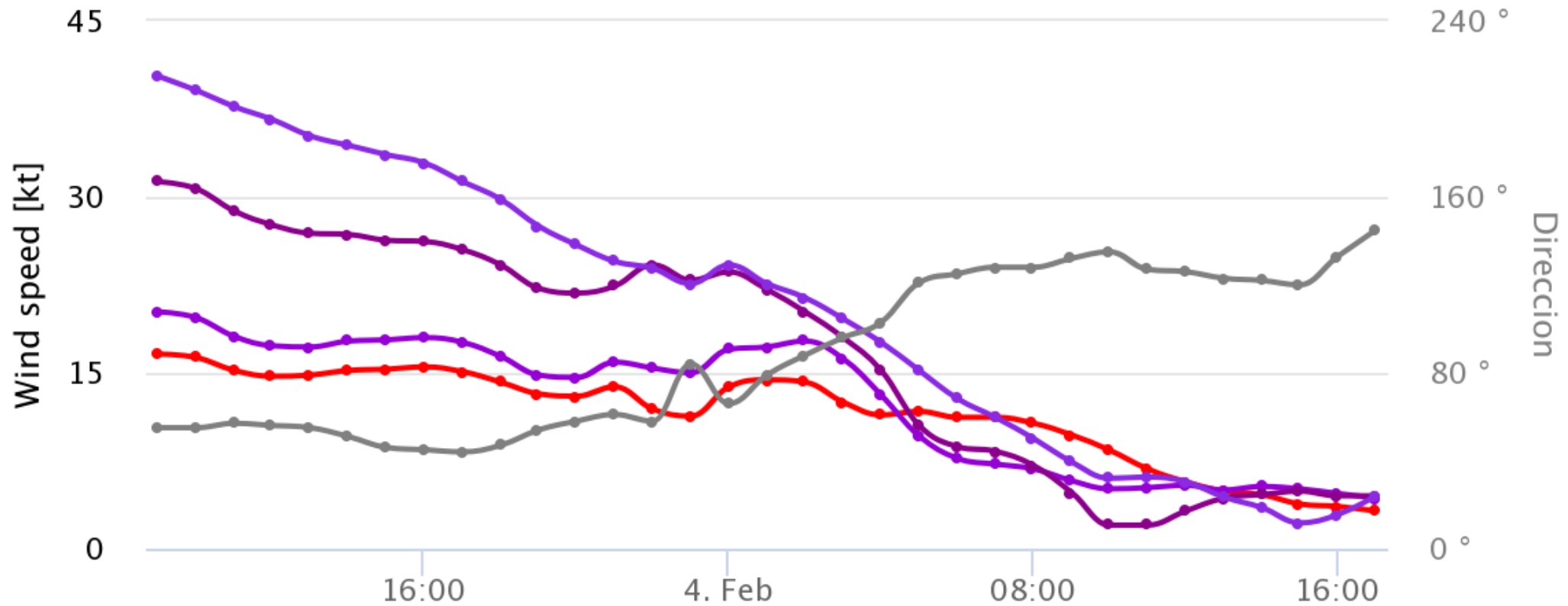


● icing risk range [ft]



Forecast for BELG. Wind AGL

WRF

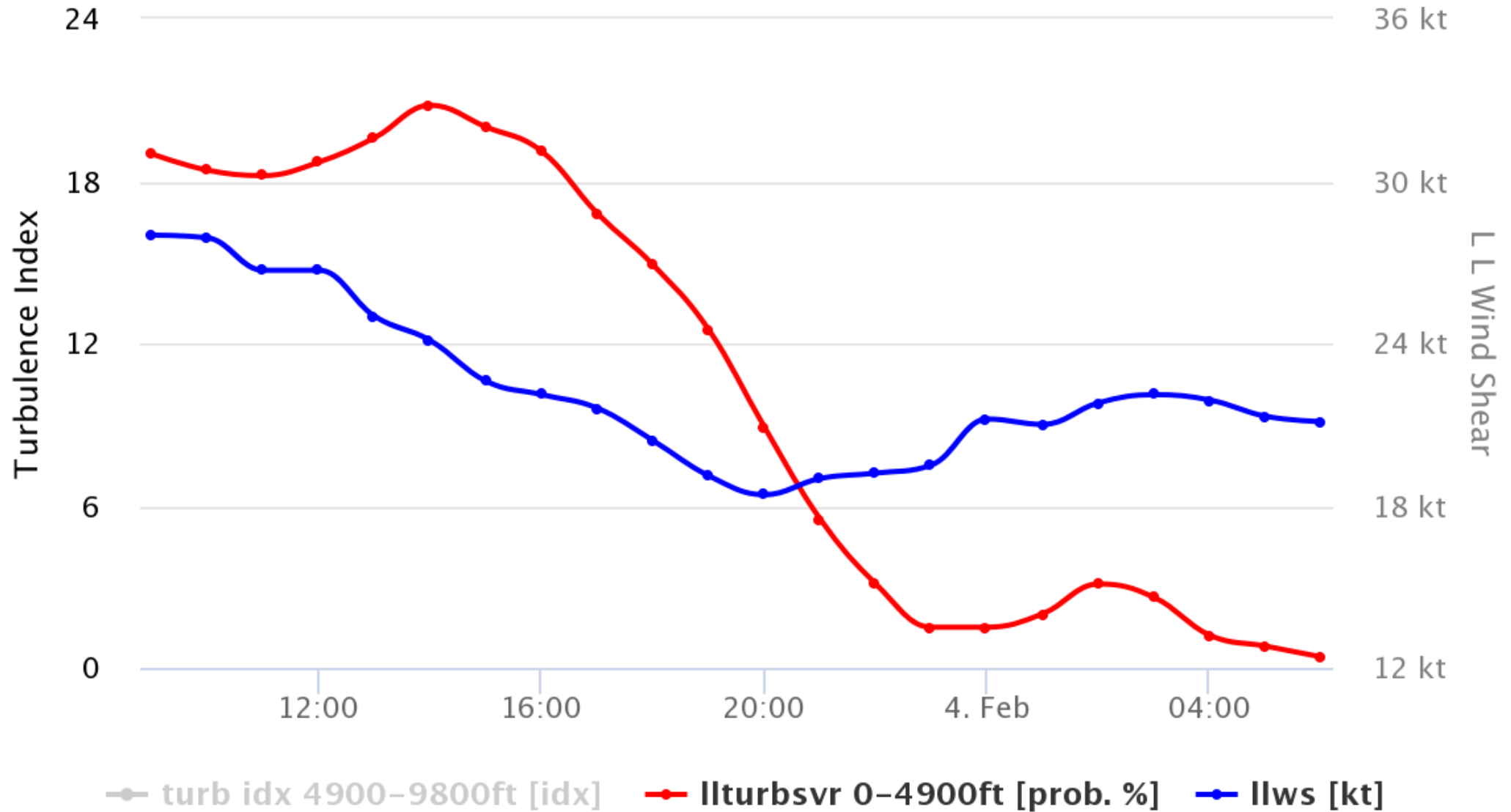


- wind 33 ft AGL [kt]
- wind 1000 ft AGL [kt]
- wind 164 ft AGL [kt]
- wind 2000 ft AGL [kt]
- wind 328 ft AGL [kt]
- wind 3000 ft AGL [kt]
- wind 5000 ft AGL [kt]
- wind 9000 ft ASL [kt]
- wind 9000 ft ASL [kt]
- wind 9000 ft ASL [kt]
- gusts [kt]
- winddir 33 ft AGL [°]



Forecast for BELG. Turbulence

WRF



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- Logistically complex operation: a total of 166 ton of cargo – mainly food and fuel
- 9 round trips between Ushuaia (Arg) - BelgranoII (Arg Base)
- One ALE staff is on the drop zone in Belgrano
- Final result:
 - finished in 15 days – 3 weather delay days
 - broken goods: 3 eggs and 2 bottles of wine!





Thanks for your attention

