

# **Evoluzione della Connettività a Concordia: la Rete che Trasforma la Scienza in Antartide**

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**OGS**





# Concordia Station [75° S, 123° E]



- Infrastruttura di ricerca cogestita
  - Francia (IPEV)
  - Italia (PNRA)
- Osservatori scientifici
- Dome Charlie
  - 3233m ASL
  - 1100km dalla costa



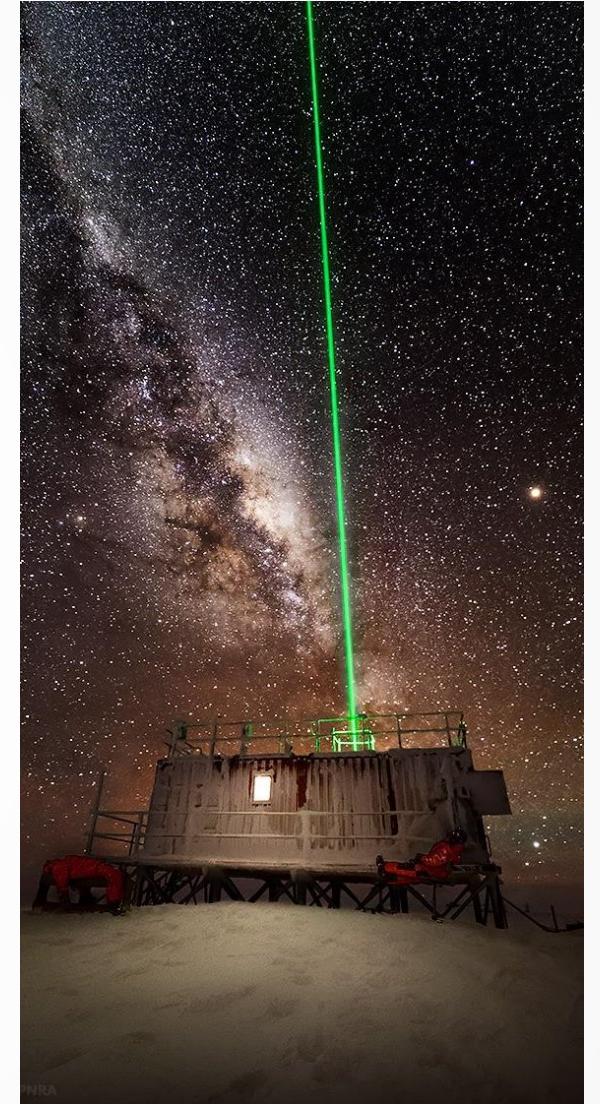
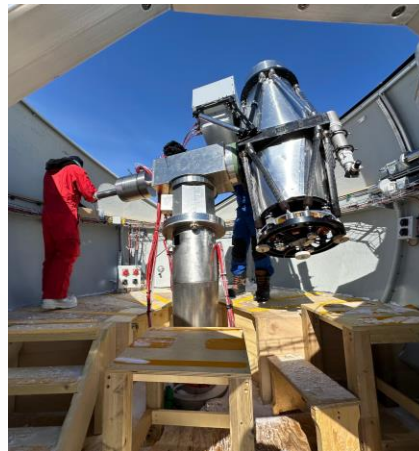
# Clima

- ▶ desertico (<5cm neve/anno)
- ▶ temperatura minima:  $-84.7^{\circ}\text{C}$  (2010)
- ▶ temperatura stagione 2025
  - ▶ max  $-17.3^{\circ}\text{C}$  (17 gennaio)
  - ▶ min  $-77.6^{\circ}\text{C}$  (13 aprile)
- ▶ poco vento (max 40km/h)
- ▶ aria secca
- ▶ bassa pressione



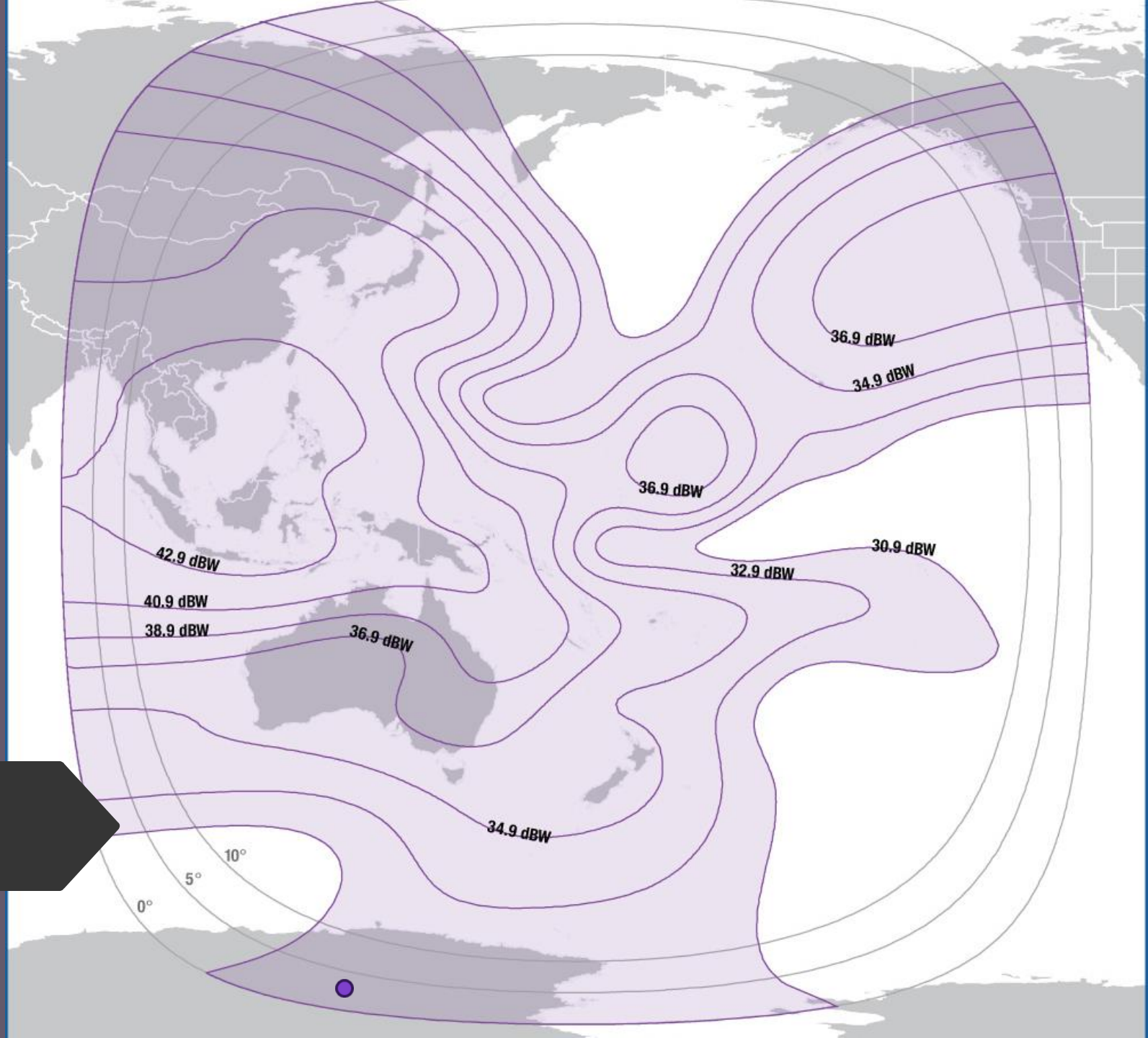
# Gli esperimenti

- CATCH-O
- AIR-FLOC
- Meteo
- ISACCO
- LIDAROB
- SOLARIS
- Geomagnetismo
- Sismologia
- SuperDARN
- ASTEP
- HAMSTRAD
- Tanti altri...



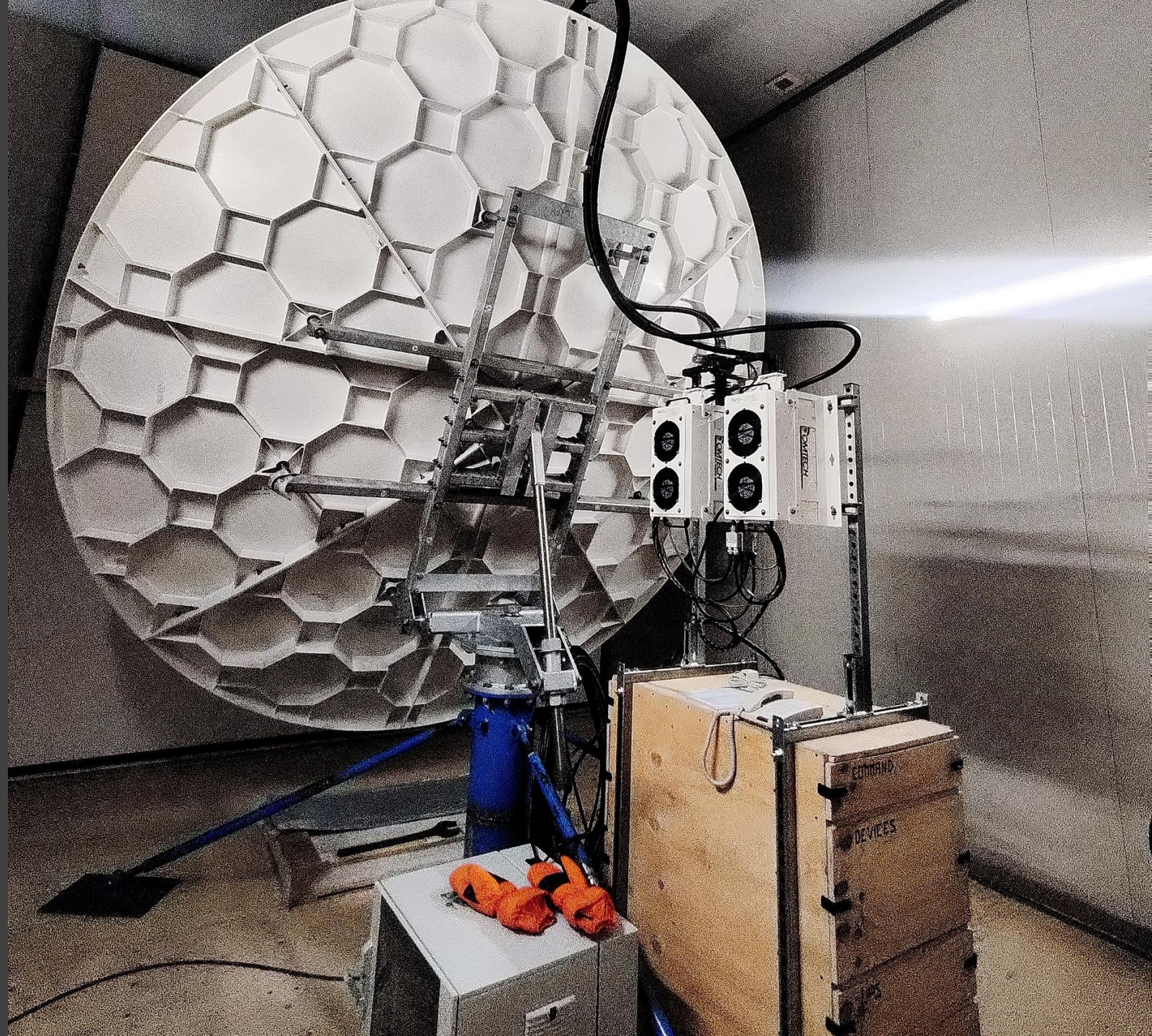
# Intelsat 19 166° E

C-band West Hemi Beam



# VSAT

- ▶ Principale link Internet fino al 2024
- ▶ C-band (L-band modem)
- ▶ Redundancy 1:1
  - ▶ 2x Comtech CDM-625
  - ▶ Comtech CRS-170A
  - ▶ 2x LPOD PS2-C 125W
  - ▶ 2x LNB Norsat 3020XN
- ▶ Prodelin 3.8m 1385 Series
  - ▶ 44° azimuth, 2.2° elevation
- ▶ 1-5 Mbps simmetrico
- ▶ +800 ms RTT



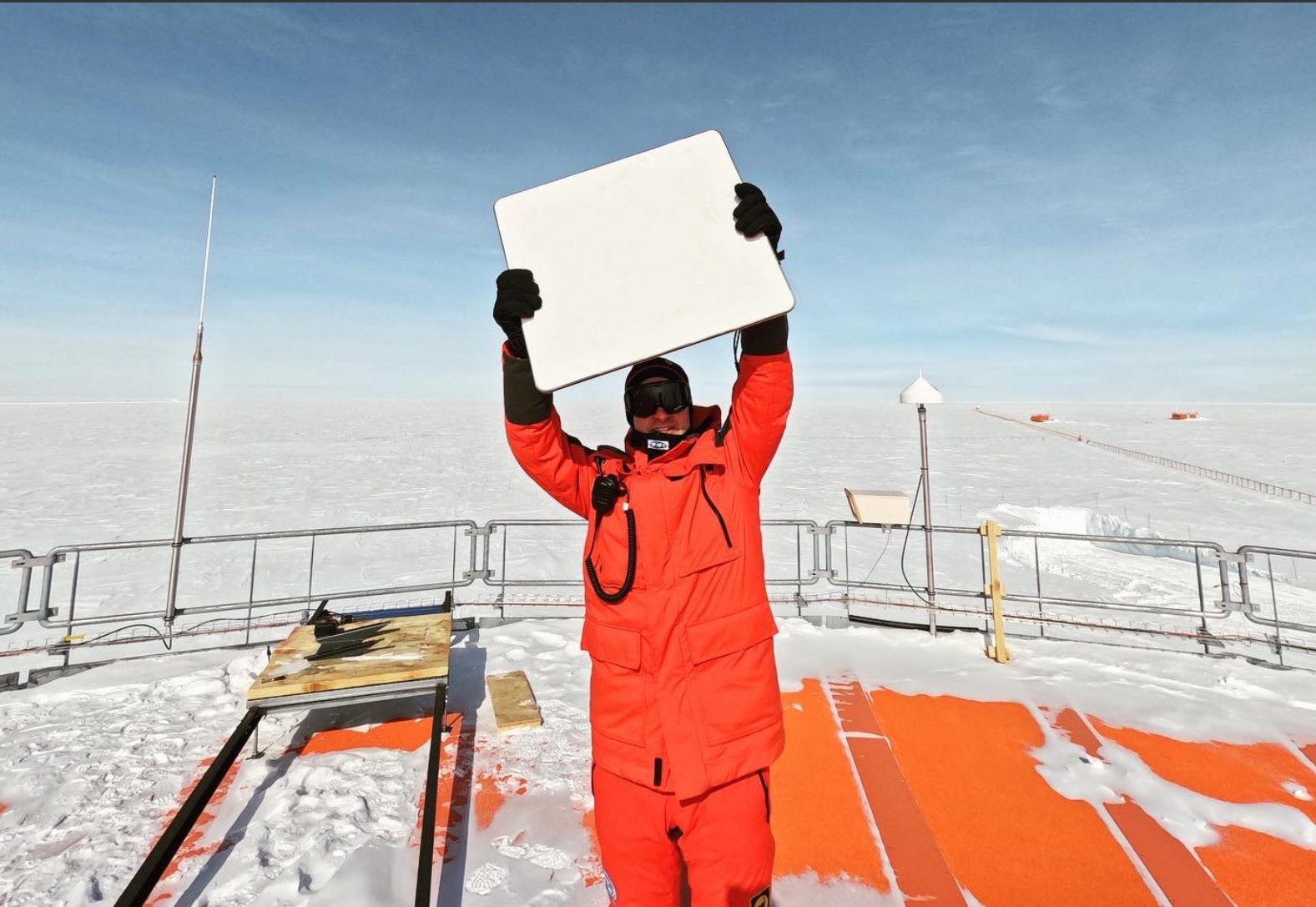


# Napa Teleport

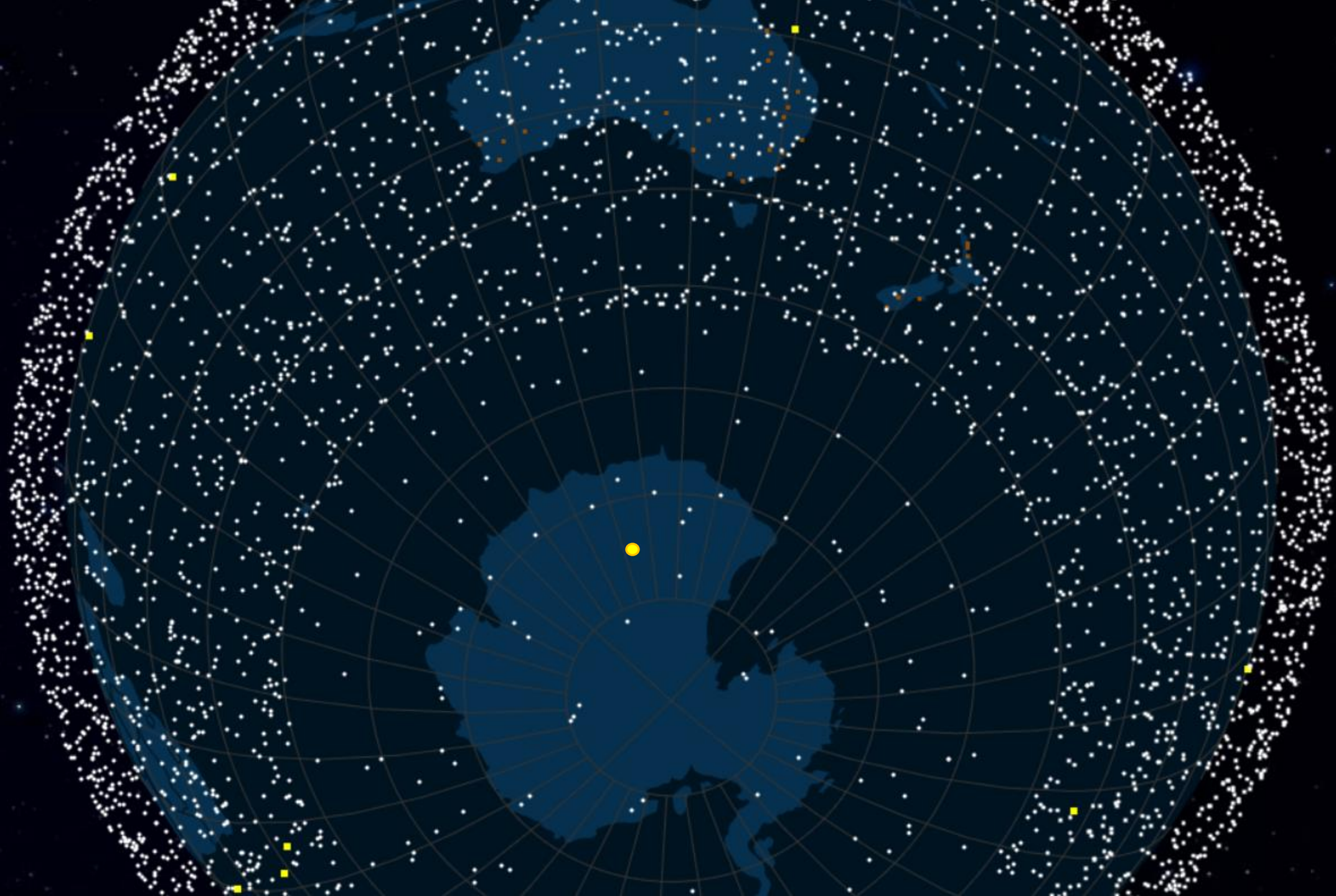
California, USA



# STARLINK

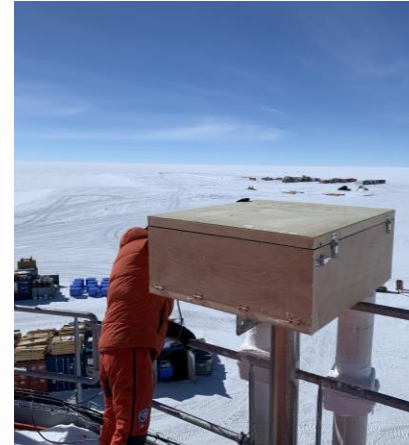
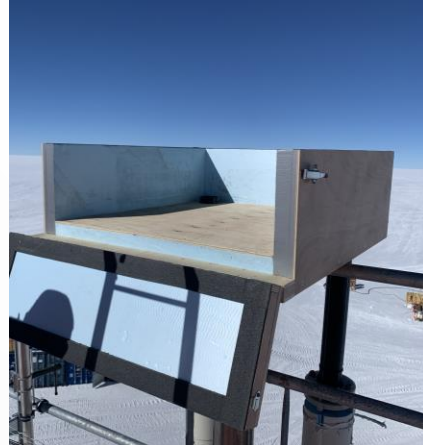
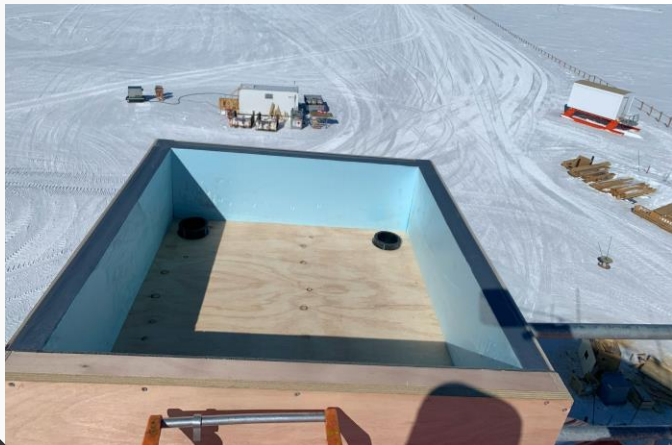
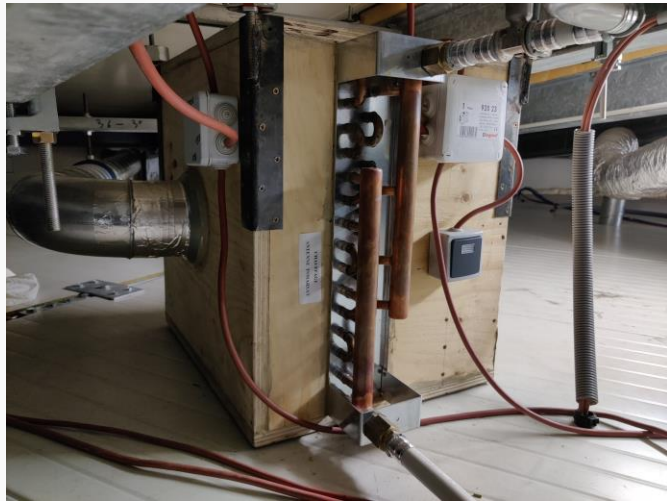


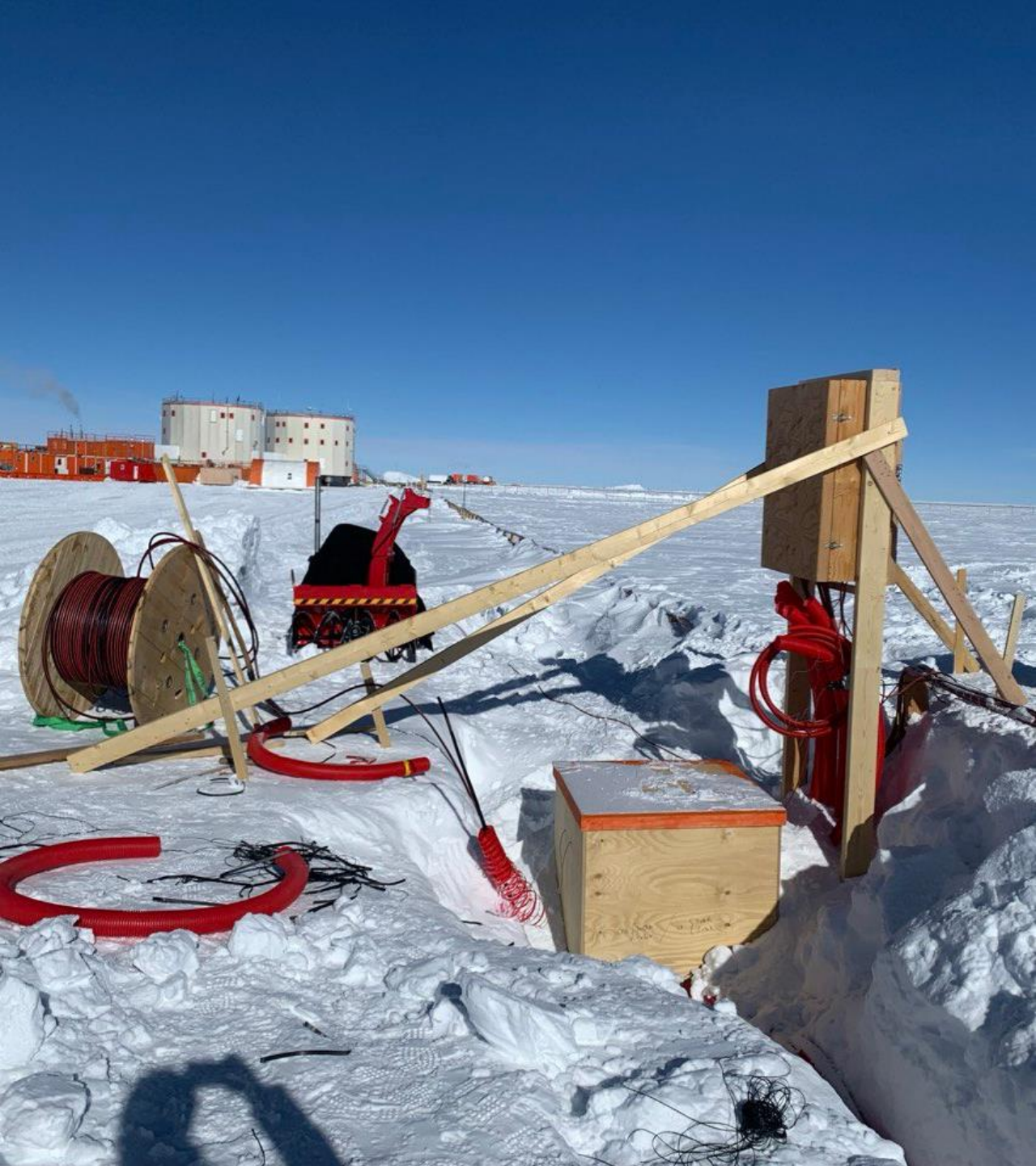
- ▶ Installato a Dicembre 2023
- ▶ Uptime >99%
- ▶ Ku-band (V-band in future)
- ▶ Bandwidth:
  - ▶ ~200 Mbps downlink
  - ▶ ~50 Mbps uplink
- ▶ 300-600 ms RTT

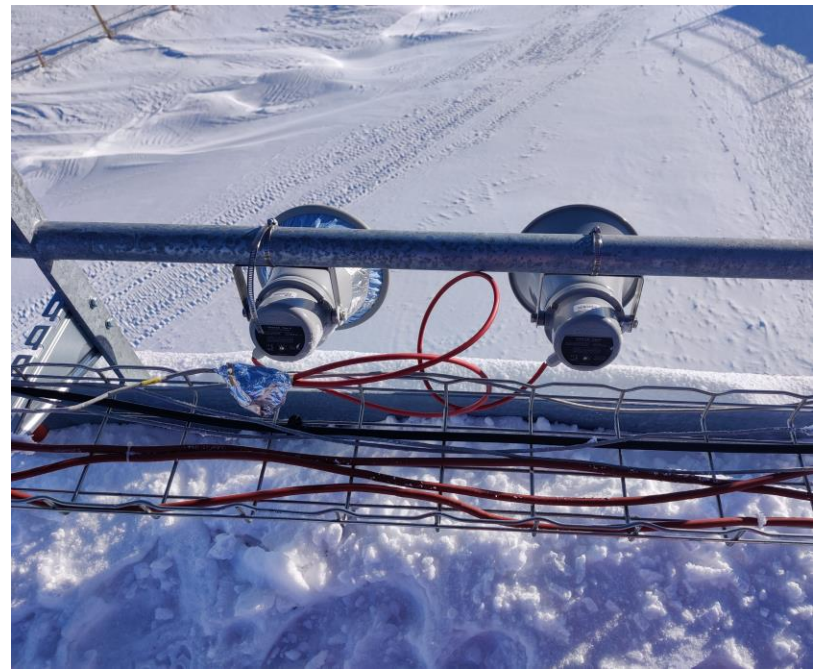




# Coibentazione













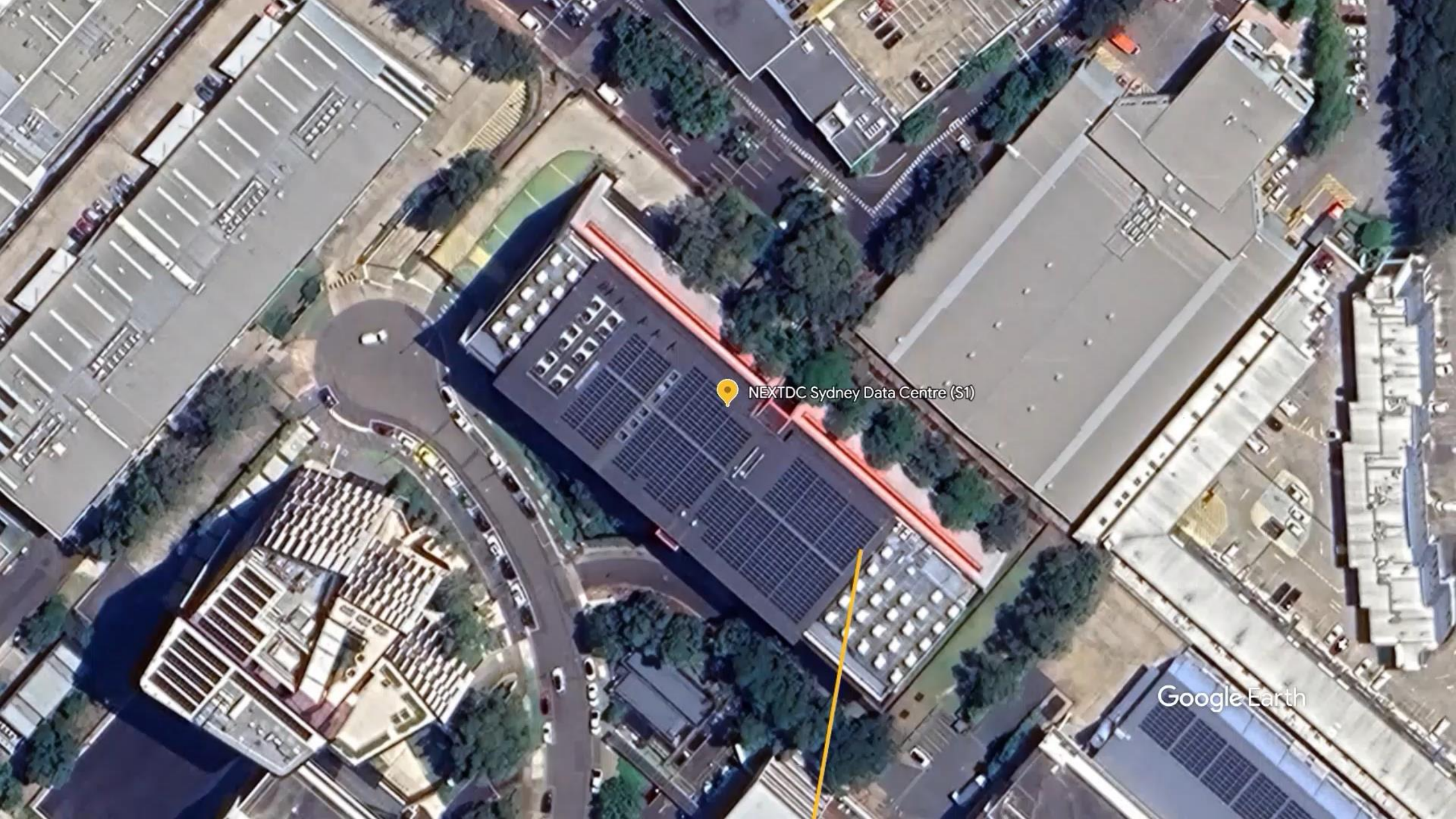
Concordia Station



Google Earth

# NEXTDC S1 Sydney Data Centre

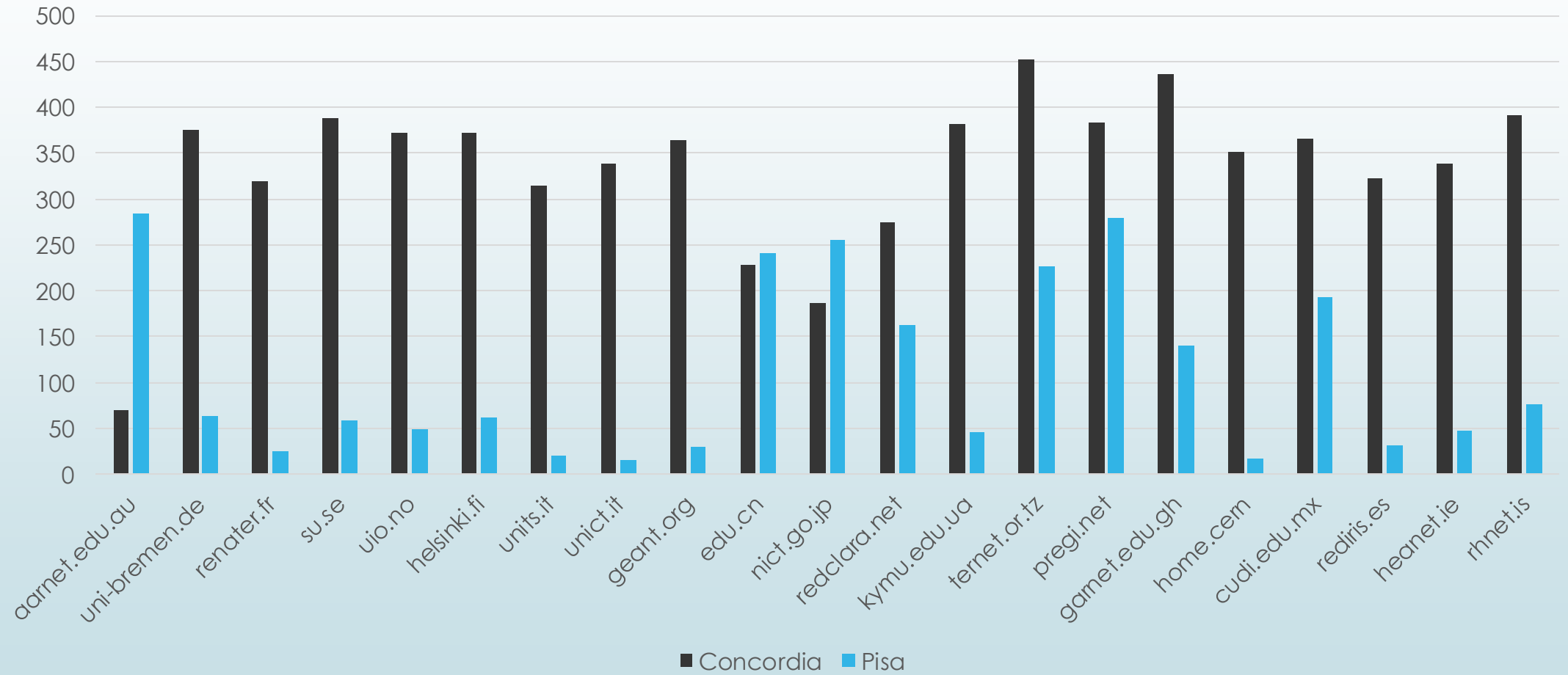




📍 NEXTDC Sydney Data Centre (S1)

Google Earth

# Round Trip Time



# Prossimi passi

- Connessione ridondata con Starlink (altri operatori?)
- Potenziamento Wi-Fi con copertura outdoor
- Backbone di rete a 10 Gbps
- Rafforzamento della Cybersecurity
- Cluster per il calcolo ad alte prestazioni
- VPN site-to-site e uso di IPv6
- Shadow IT

# Grazie

*Avere internet che funziona...  
cambia più cose di quanto si immagina.*

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