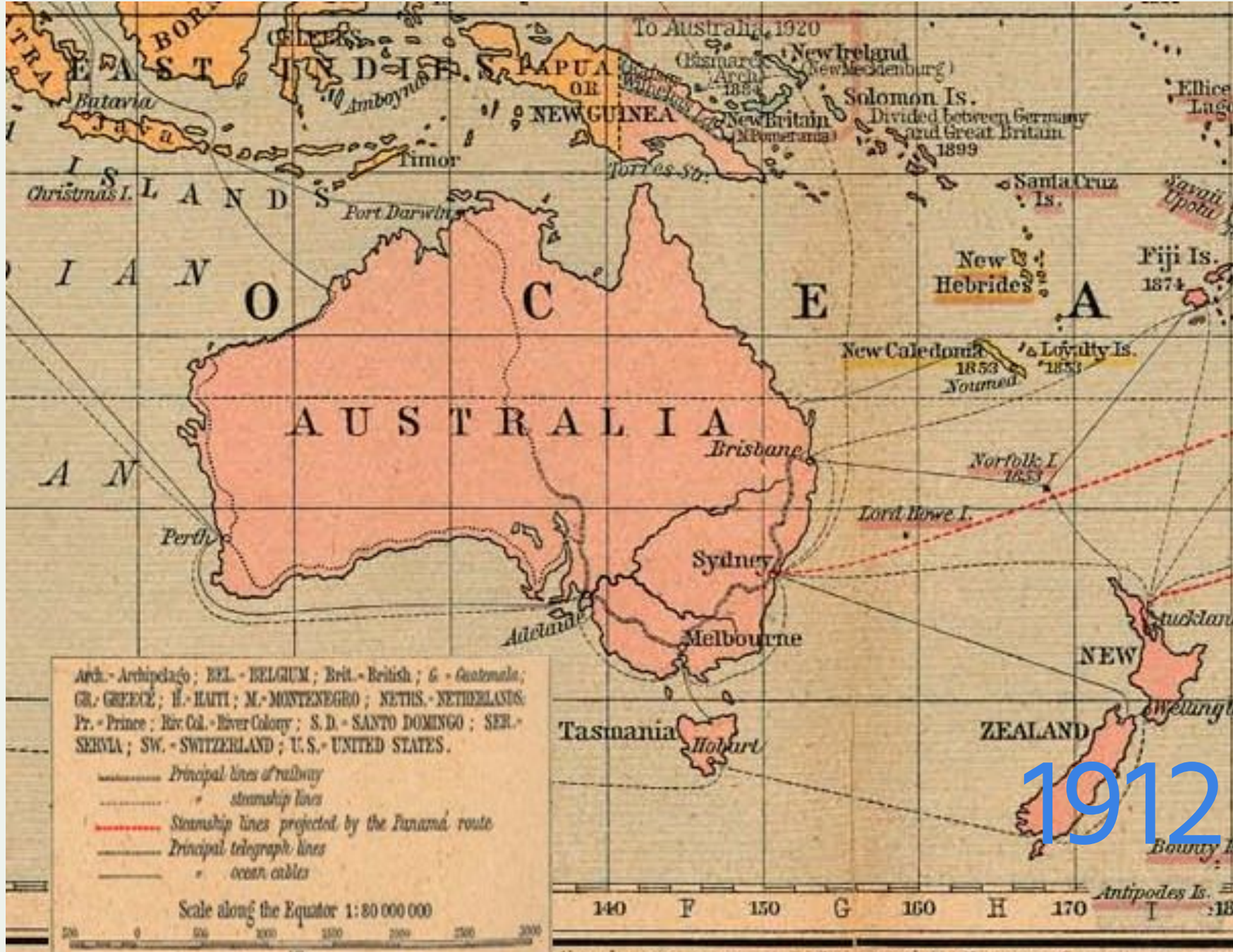


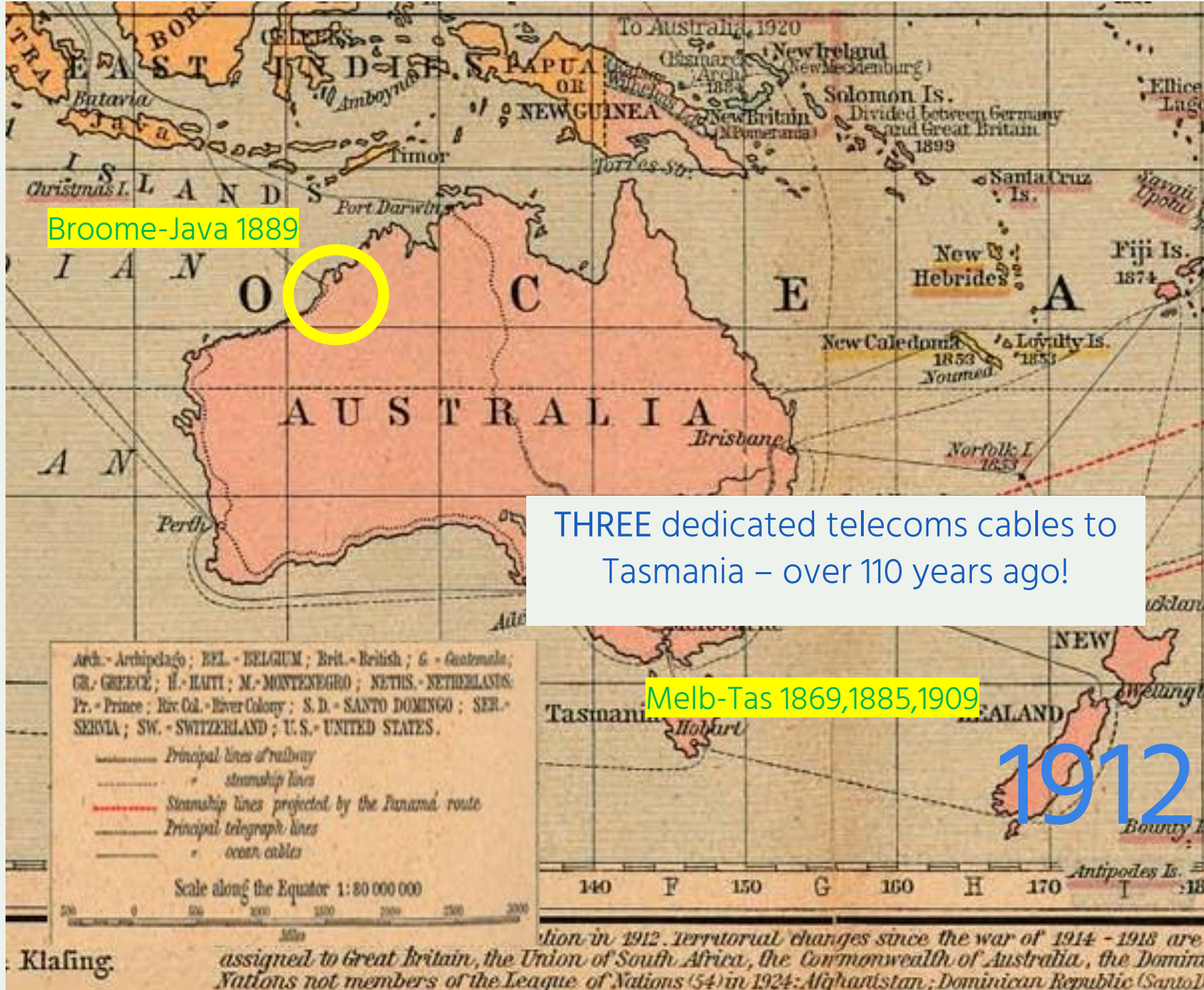
April 2022



Whats coming downunder (the waves)

Paul Brooks
Chair, Internet Australia
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Cable Beach – Broome – Western Australia



ENGINEERS
AUSTRALIA

HISTORIC ENGINEERING MARKER

Broome to Java Telegraph Cable

The 1650 km long submarine cable from Banjoewangie, Java to Broome provided the third link to Europe in 1889. Using the *SS Seme* the Telegraph Construction & Maintenance Co. laid the cable for the Eastern Extension, Australasia & China Telegraph Co. Ltd in 10 days. Engineers Clark, Forde & Taylor designed and supervised the work. The cable came ashore at this beach, hence the name Cable Beach. The link greatly increased the security of Australia's overseas communications.

The Institution of Engineers Australia
Shire of Broome 2006

Cable Beach – Broome – Western Australia

Pacific Cable (Sydney-NZ) Sydney landing



LAYING PACIFIC CABLE.

1912

00035494



2019

Critical Infrastructure - Highly secure

SEA-ME-WE-3
Beach Manhole



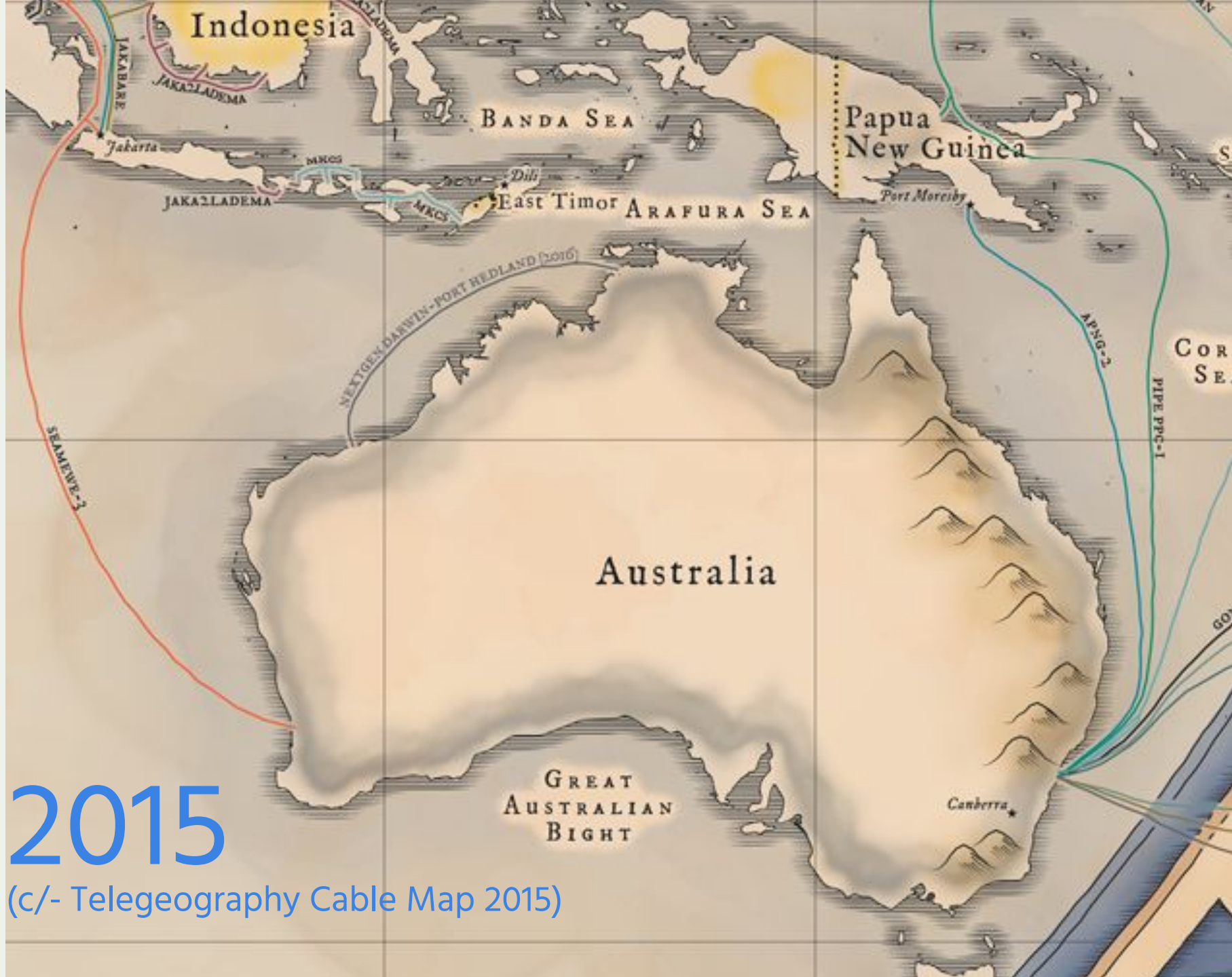
Highly secure beach landings...



SEA-ME-WE-3

Jakarta Beach Manhole

Critical Infrastructure security by obscurity



2015

(c/- Telegeography Cable Map 2015)

West Coast

Existing:

- SEA-ME-WE-3
- ASC (Vocus)
- Indigo (Various)
- NWCS (Vocus resources)

New:

- Darwin-Jakarta-Singapore Link between NWCS & ASC (Vocus)
- Oman-Australia Cable (Sub.Co)



Darwin-Jakarta-Singapore Cable (DJSC) - Vocus

1,000 km new cable linking ASC to NWCS

Under construction, anticipated RFS 2023

40 Tbps headline capacity

- Darwin
- Port Hedland
- Jakarta
- Singapore

Latency for Darwin-Singapore (or oil & gas majors)
comparable to Darwin-Perth



Oman-Australia Cable (OAC) – Sub.Co

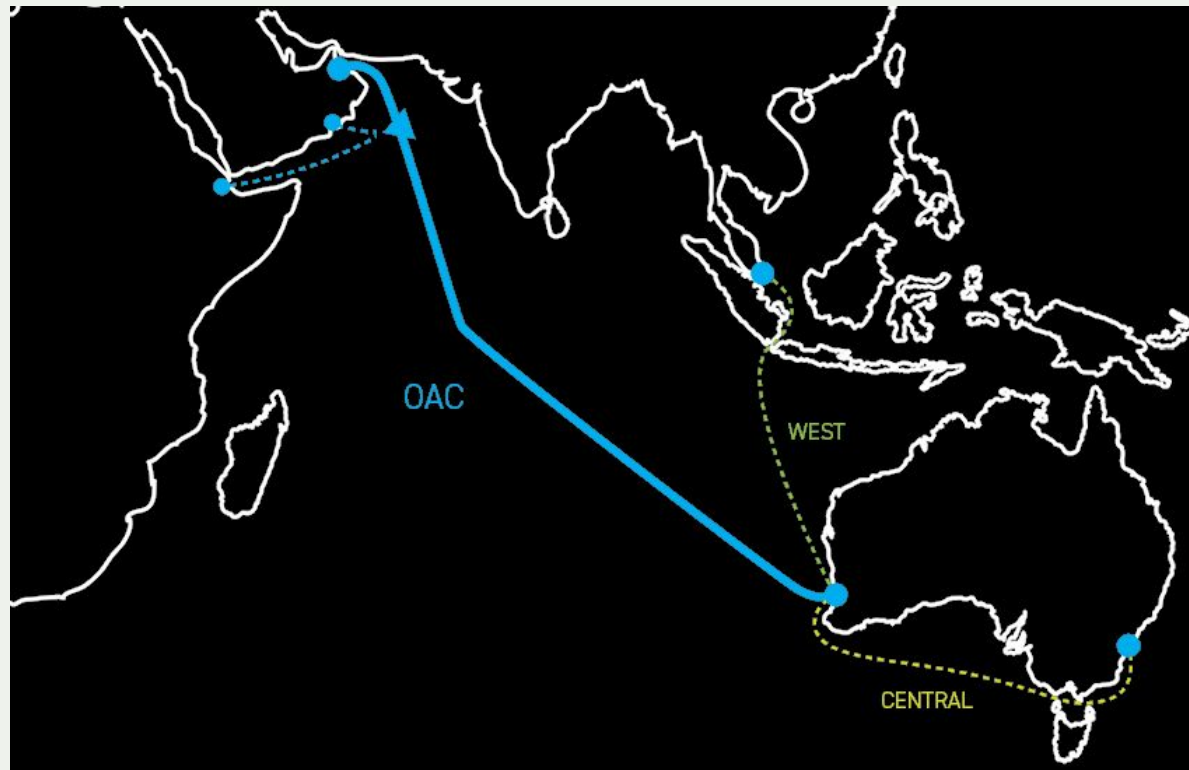
9,800 km new cable

Under construction, anticipated RFS mid-2022

39 Tbps headline capacity

- Perth
- Cocos/Keeling Islands
- Muscat, Oman

Will be lowest latency path between
Australia – MiddleEast &
Australia-Europe



Southern Coast

Existing:

- Bass Strait 1 (Telstra)
- Bass Strait 2 (Telstra)
- BassLink (Basslink Telecoms)

New:

- Marinus Link Tasmania- Victoria (planning only)
- Hawaiki Nui (Melbourne landing)



Marinus Link

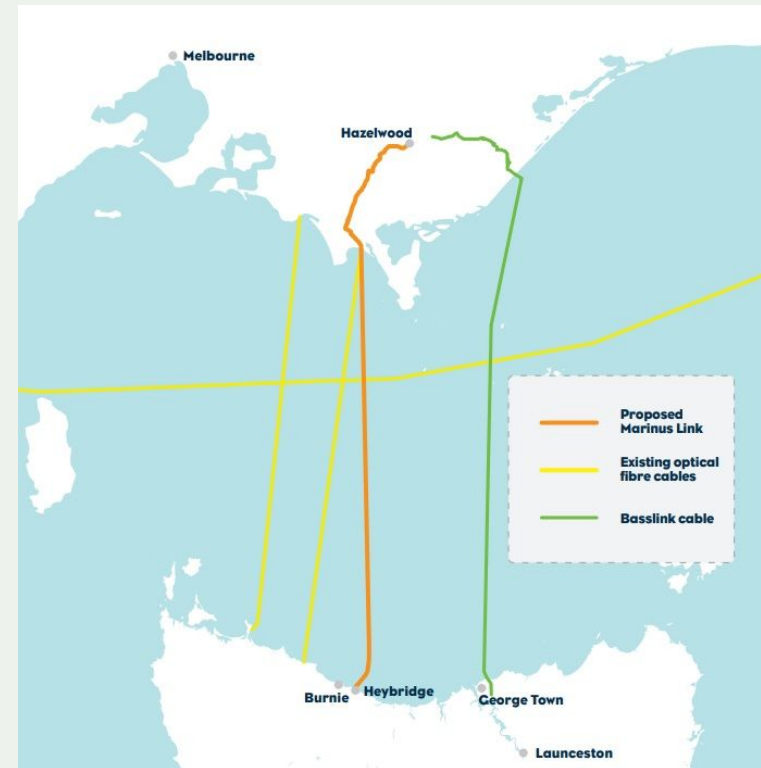
~350km new cable, alongside major electricity interconnector – similar to Basslink

Optical fibre cable laid in parallel for power system telemetry and control – extra fibre cores *may* be available for telecommunications purposes

Cable Route Survey started 2022

Anticipated Stage 1 completion 2032

No certainty that fibres will be available for telecommunications



¹ <https://marinuslink.com.au>

⁶ <https://www.cradlecoast.com/breaking-news-heybridge-announced-as-preferred-site-for-marinus-link/>

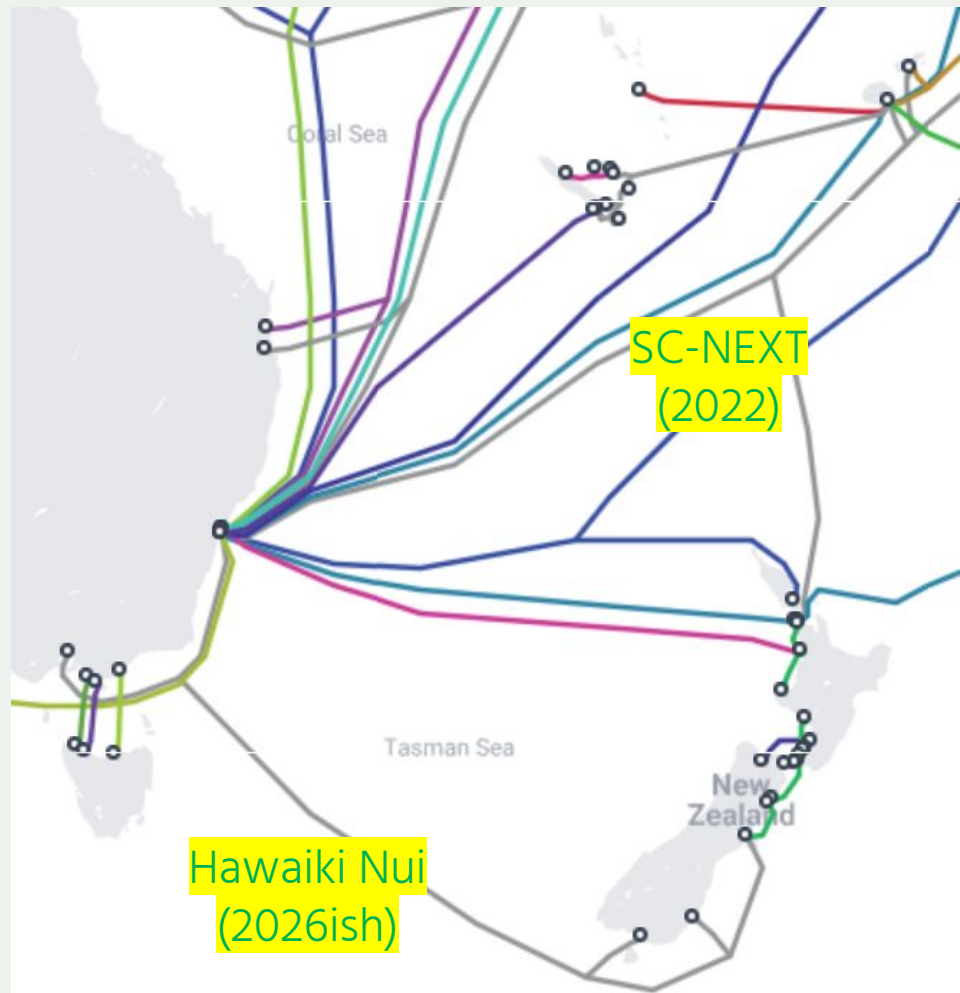
East Coast NSW/VIC

Existing:

- Coral Sea Cable System (2020)
- Japan-Guam-Australia (South) (2020)
- Indigo (2019)
- Hawaiki (2018)
- Tas Global Access (2017)
- PPC-1 (2009)
- Endeavour (2008)
- Gondwana-1 (2008)
- Aust-Japan Cable (2001)
- Southern Cross Cable Network (2000)

New:

- Southern Cross NEXT
- Hawaiki Nui (incl Melbourne landing)
- Humboldt (from Chile)



Southern Cross NEXT– (Southern Cross Cable)

15,900 km new cable

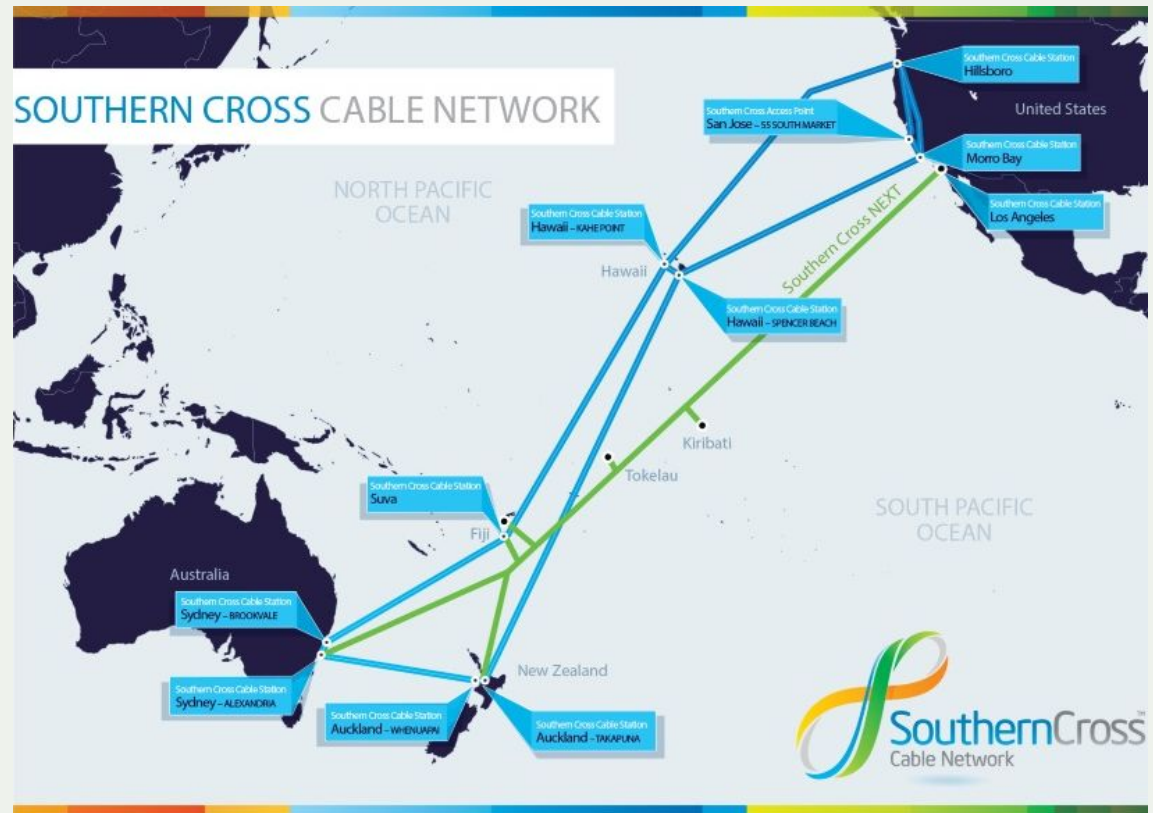
Almost completed construction, anticipated RFS mid-2022

72 Tbps headline capacity

- Sydney
- New Zealand
- (Fiji, Tokelau, Kiribati)
- Los Angeles, USA

No landing in Hawaii

Island spurs all connect
USA-NZ only, trombone
to Sydney



Hawaiki Nui (Hawaiki)

22,000 km new cable

Announced late-2021, anticipated RFS 2025

240 Tbps headline capacity using Spatial Division Multiplexing

- Melbourne/Sydney/Brisbane/Darwin
- Invercargill/Dunedin/Christchurch NZ (Sth Island)
- Jakarta, Batam (Indonesia)
- Singapore
- Hawaii & Los Angeles, USA

First cable to Aus to use newest SDM tech



Humboldt Cable (first direct Asia-South America cable) – (Government of Chile) – contracted to H2 Cable

14,800 km new cable, 4 fibre-pairs (50+ Tbps?)

Financing & feasibility studies commenced, construction not started, anticipated RFS 2025+

- Valparaiso, Chili
- New Zealand
- Sydney



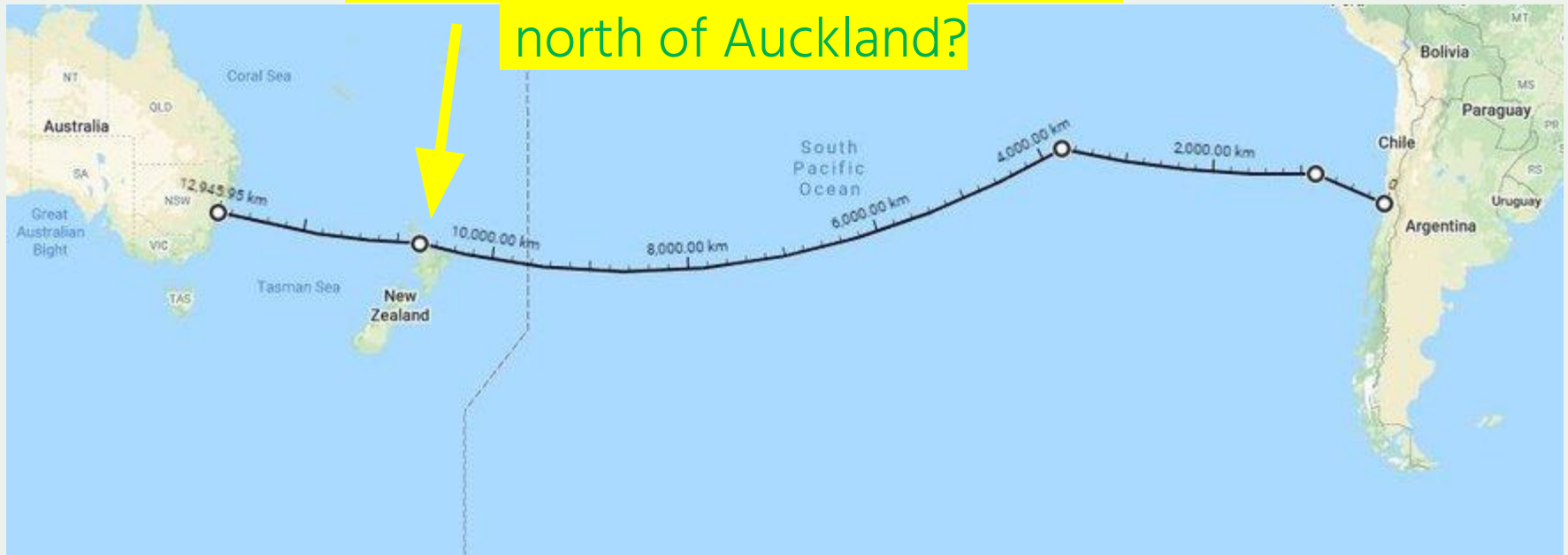
Where in NZ – North Island?

Humboldt Cable (first direct Asia-South America cable) – (Government of Chile) – contracted to H2 Cable

14,800 km new cable, 4 fibre-pairs (50+ Tbps?)

- Valparaíso, Chile
- New Zealand
- Sydney

Mangawhai Heads (Hawaiki CLS)
north of Auckland?

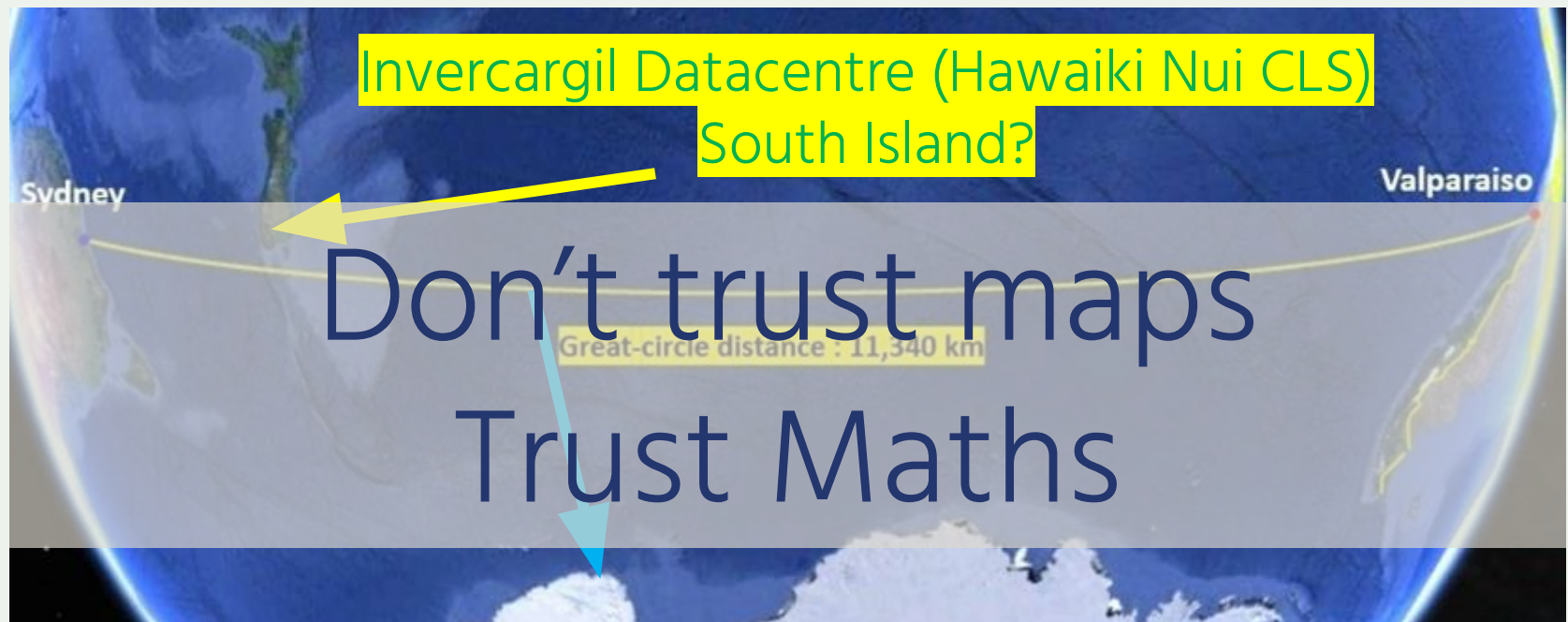


Humboldt Cable (first direct Asia-South America cable) – (Government of Chile) – contracted to H2 Cable

14,800 km new cable, 4 fibre-pairs (50+ Tbps?)

- Valparaiso, Chili
- New Zealand
- Sydney

Possible spur to NZ Antarctic Territory
Scott Base (NZ), McMurdo Base (USA)



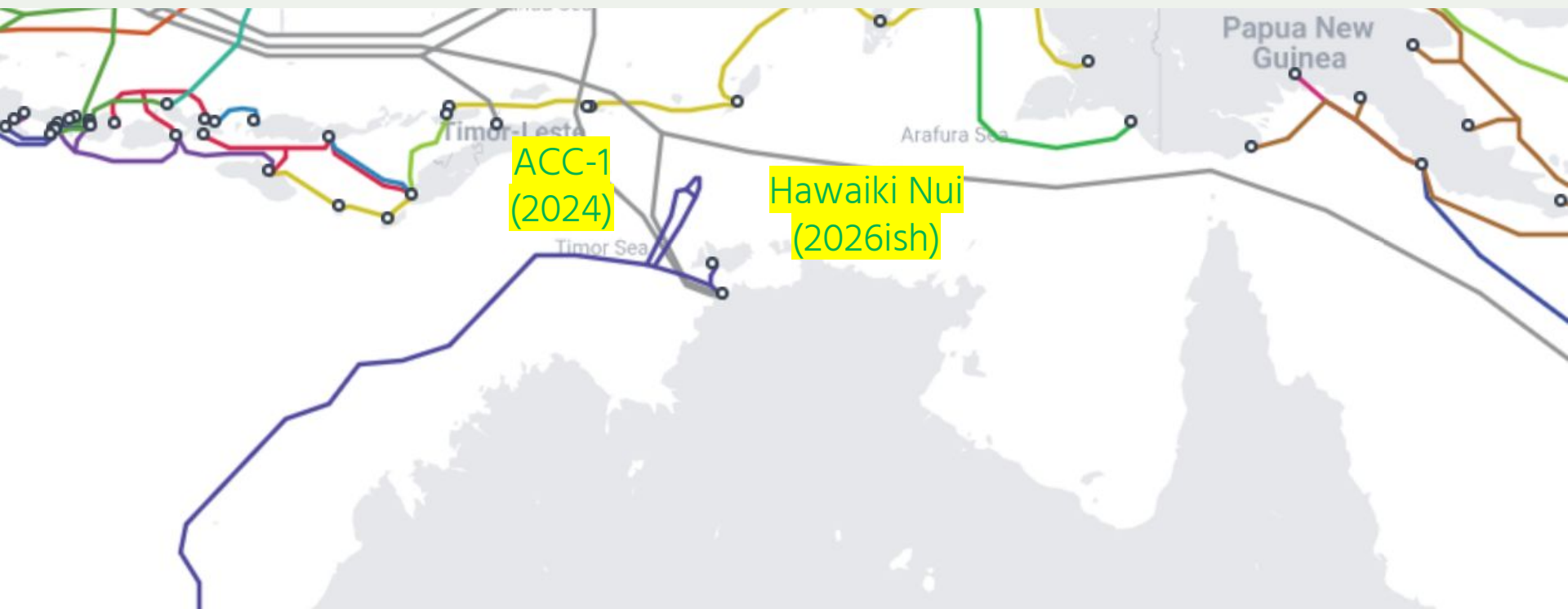
North Coast

Existing:

- NWCS (Vocus resources) incl Tiwi Islands

New:

- Hawaiki Nui (H2/Chilean Govt)
- Asia-Connect Cable-1 (Inligo)



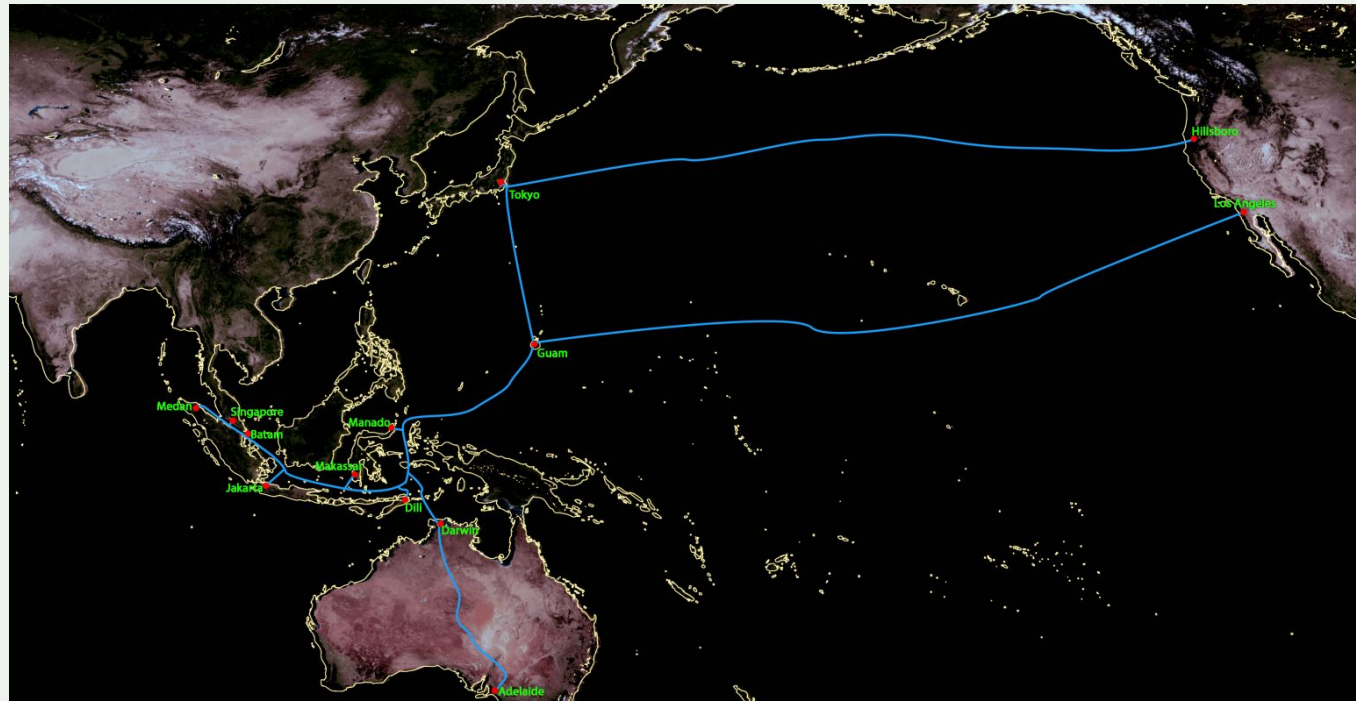
Asia Connect Cable (Inligo Networks)

18,000 km new cable

Announced Jan 2022, construction “commencing early 2022”,
anticipated RFS 2024/5?

(No landing permit or environmental approval yet)

- Darwin (+ Adelaide)
- Dili, Timor Leste
- Indonesia (multiple)
- Singapore
- Guam, USA
- Tokyo, Japan
- LA & Portland, USA



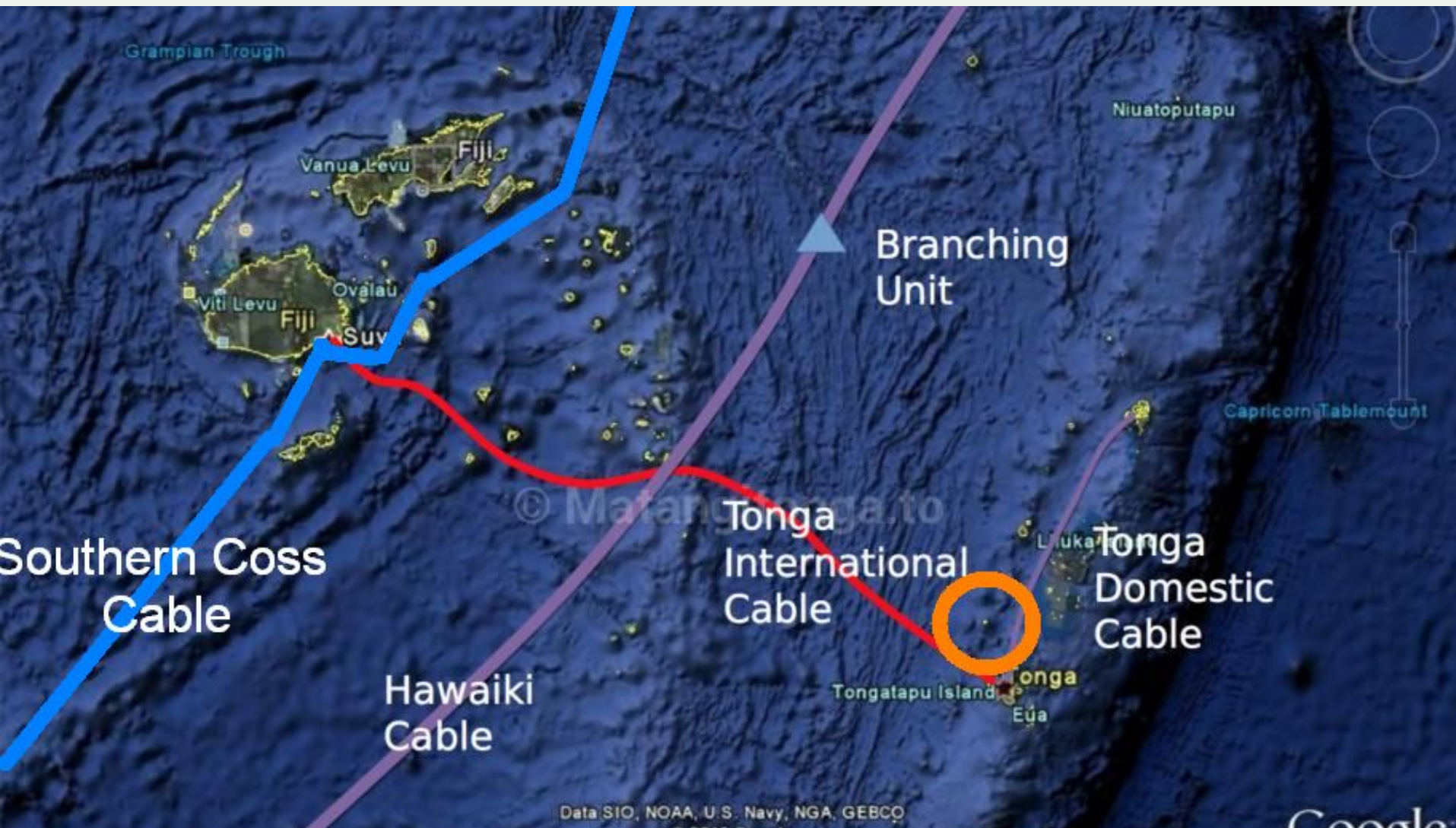
Thoughts of Darwin cable landing

Construction of cable station [edit]

In the late 1880s, the small, former colony settlement of Broome located on Roebuck Bay in the north of Western Australia consisted of two stores and a few scattered houses. It had no road or rail connection to the south of the Colony and depended on limited sea transport for its supplies and communication. It was not until 1872 that Australia was connected overseas by submarine telegraphic cable, when a cable was laid from Banjoewangie in Java to Darwin. A second cable, paralleling the first, was laid in 1880. Due to frequent breaks in the cable as a result of submarine volcanic activity, there arose an urgent need to lay a third cable, away from the seismic zone.^[3]

In February 1889, a submarine telegraph cable was laid by cable laying ship CS Seine to connect Banjoewangie, Java and Australia and was landed on what is today known as Cable Beach.^[1]

Hunga-Tonga-Hunga-Ha'apai Volcano



Hunga-Tonga-Hunga-Ha'apai Volcano

Tonga has one international cable to Fiji, then connects to SCCN

- 15 Jan: Volcano exploded, destroyed ~ 50km international cable, and domestic cable
- Fallback to satellite, but blocked by dust and ash clouds – so comms lost between islands
- Repair ship CS Reliance from Port Moresby ~4000km away, via Samoa to pickup supplies
- Starlink provided ~20 satellite terminals for government departments to regain comms
- 22 Feb: Tonga-Fiji cable repaired (5 weeks out of service)
- Domestic cable ends found with 110km gap, middle buried under debris. May take 6 – 9 months to manufacture and deliver, around a year to repair.

New Cable Summary

Under Construction

- 2022 Oman-Australia Cable (Sub.Co)
- 2022 Southern Cross NEXT (SCCN)
- 2023 DJSC Link between NWCS & ASC (Vocus)

Planning

- 2025 Hawaiki Nui incl Melb/Syd/Bris landings – (H2)
- 2025+ Asia-Connect Cable-1 to Darwin (Inligo)
- 2026+ Humboldt (from Chile)
- 2032+ Marinus Link Tasmania- Victoria



Thank you.

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