

# Deciphering Ontong Java Atoll, Nukumanu Atoll, and Kroenke Canyon, Western Equatorial Pacific

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# Objectives

- Test potential genetic relationships between
  - a) the atolls and the OJP, and
  - b) the atolls and Kroenke Canyon;
- Understand and model how atolls and canyons form and evolve on oceanic plateaus, isolated from terrestrial influences and subject to sea level fluctuations;
- Contribute to understanding tsunami risk on low-lying atolls.

## Data

- Multibeam bathymetry



Mercury



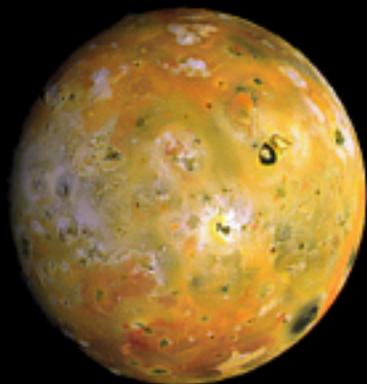
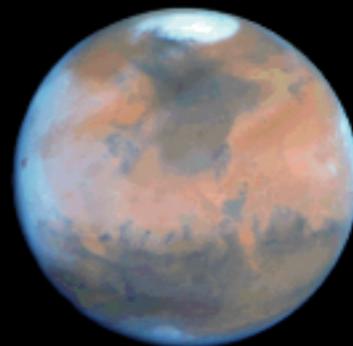
Venus



Earth



Mars



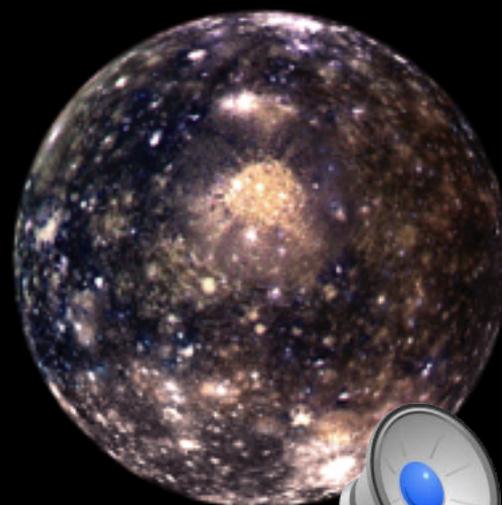
Io



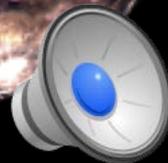
Europa



Ganymede



Callisto





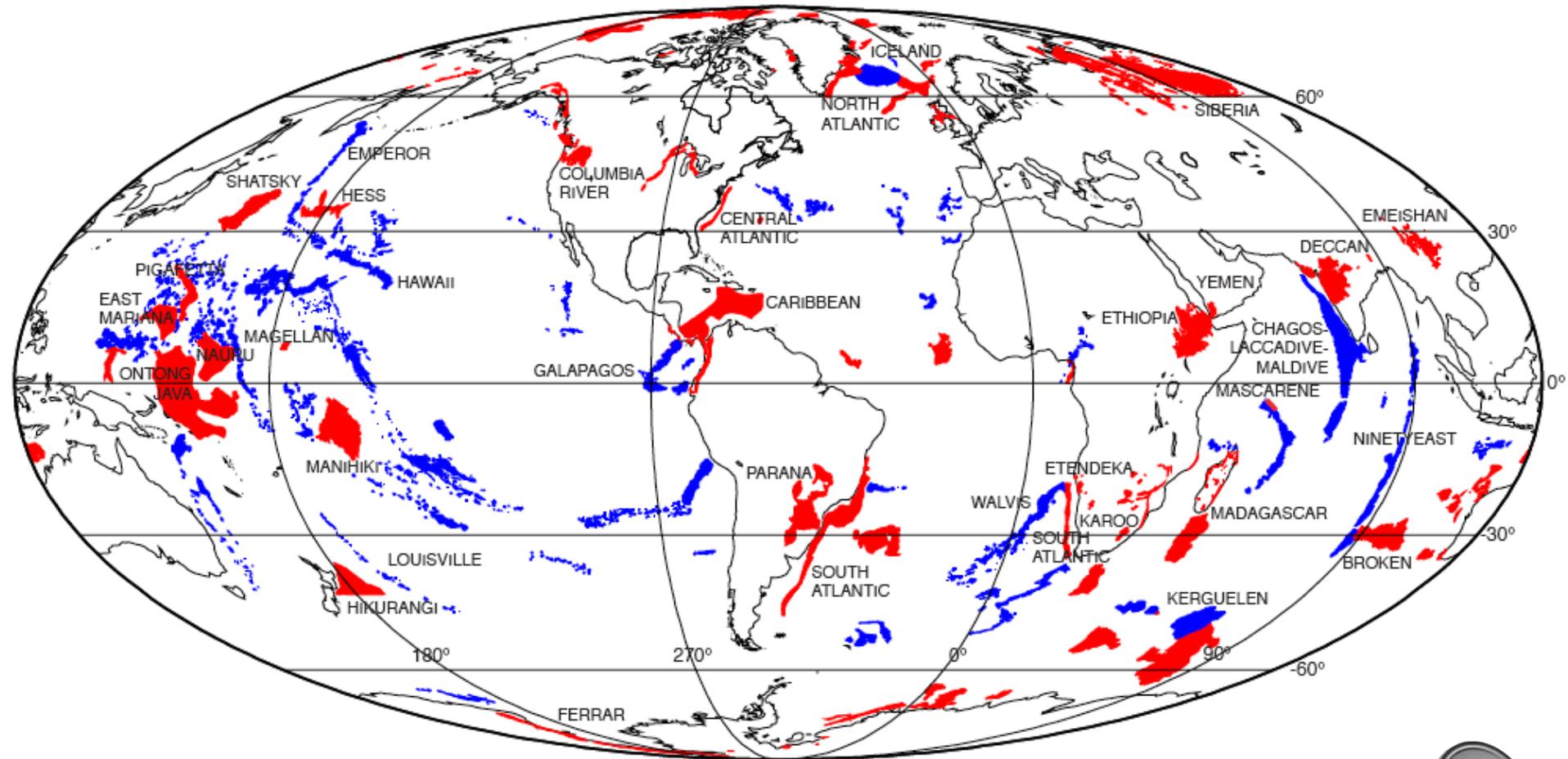
~22 km high

~600 km diameter

Head & Coffin, *AGU Monogr. 100*, 1997

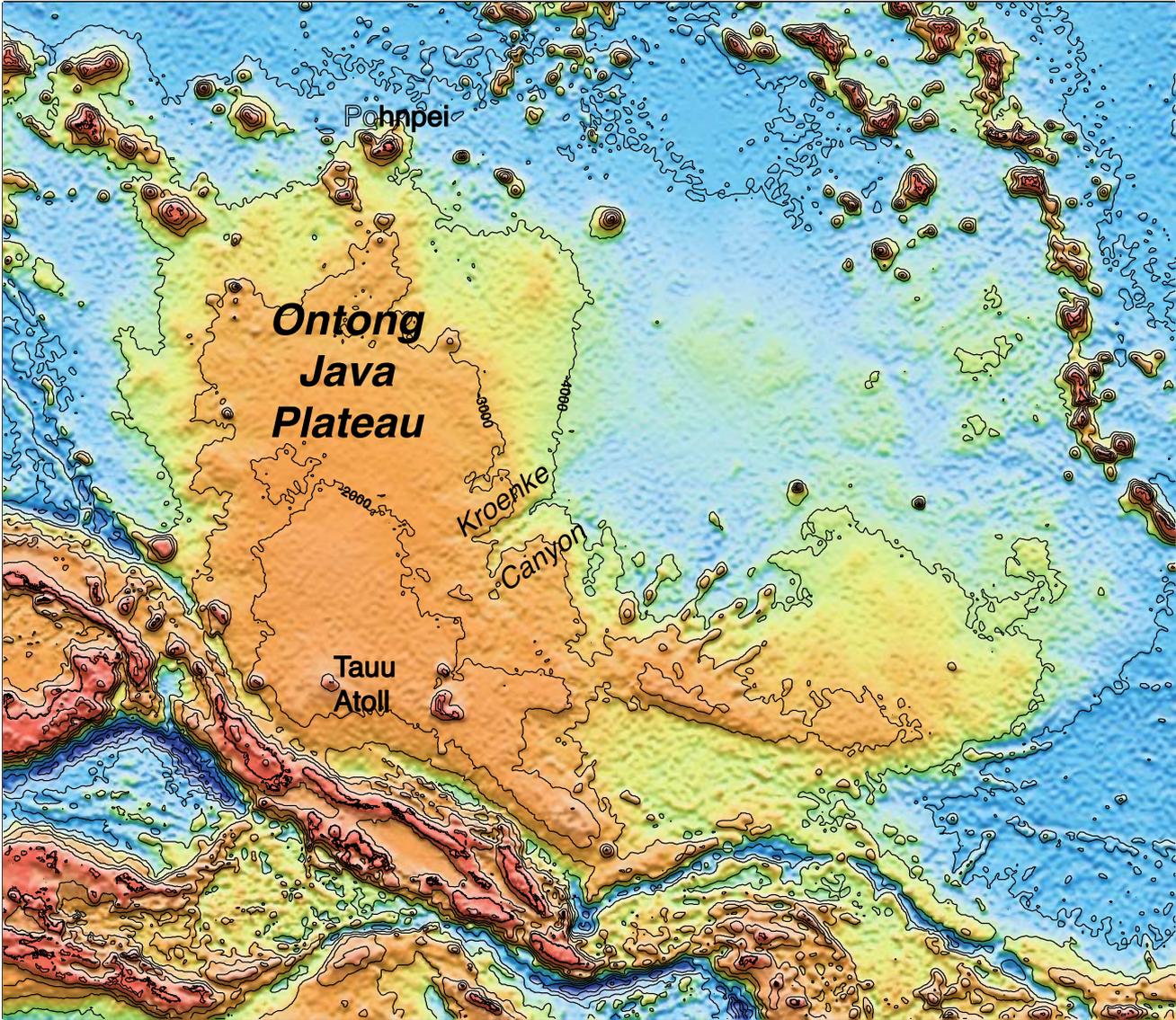


# Global LIPs



red: transient  
blue: long-lived





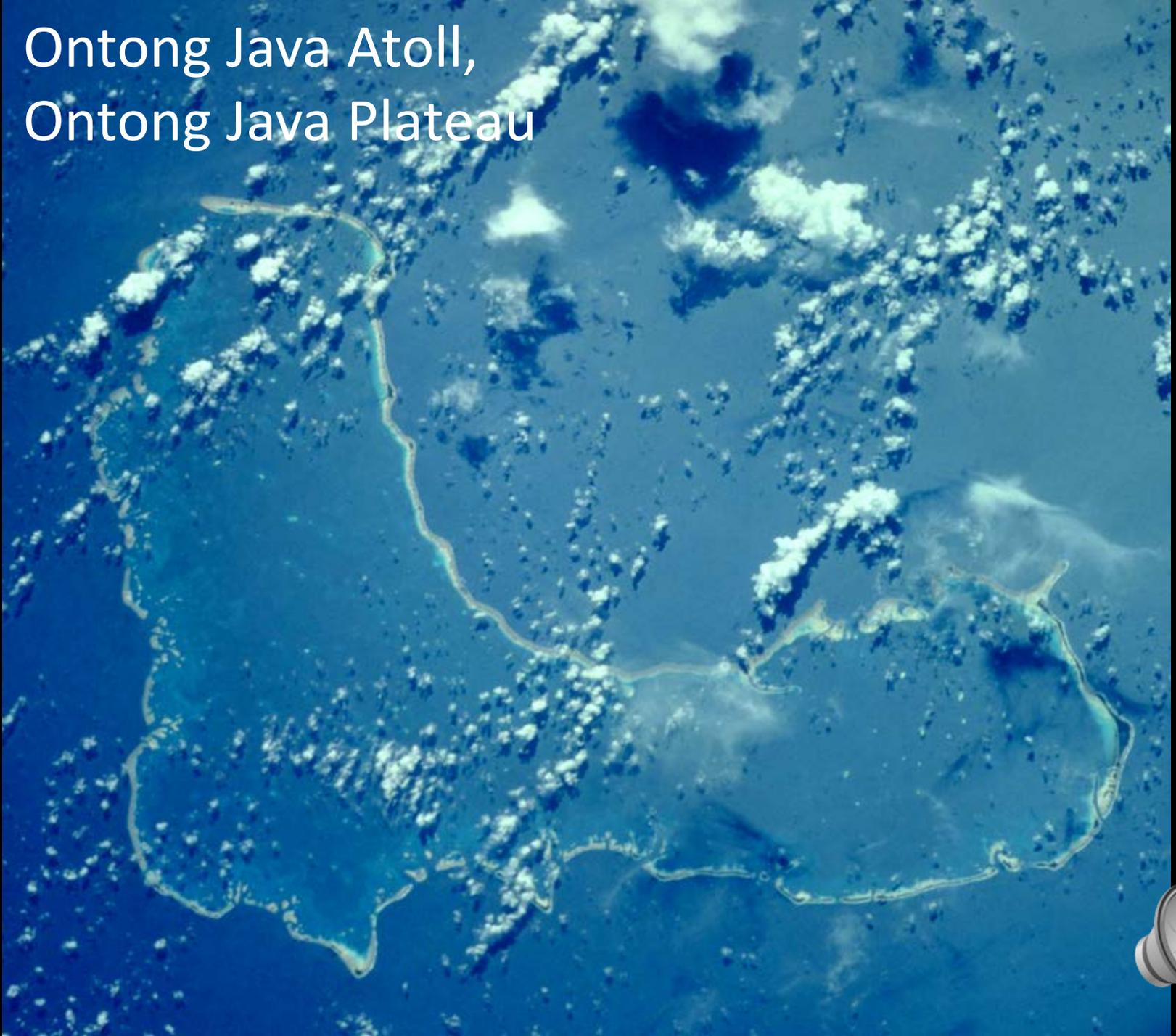
# Nukumanu Atoll, Papua New Guinea



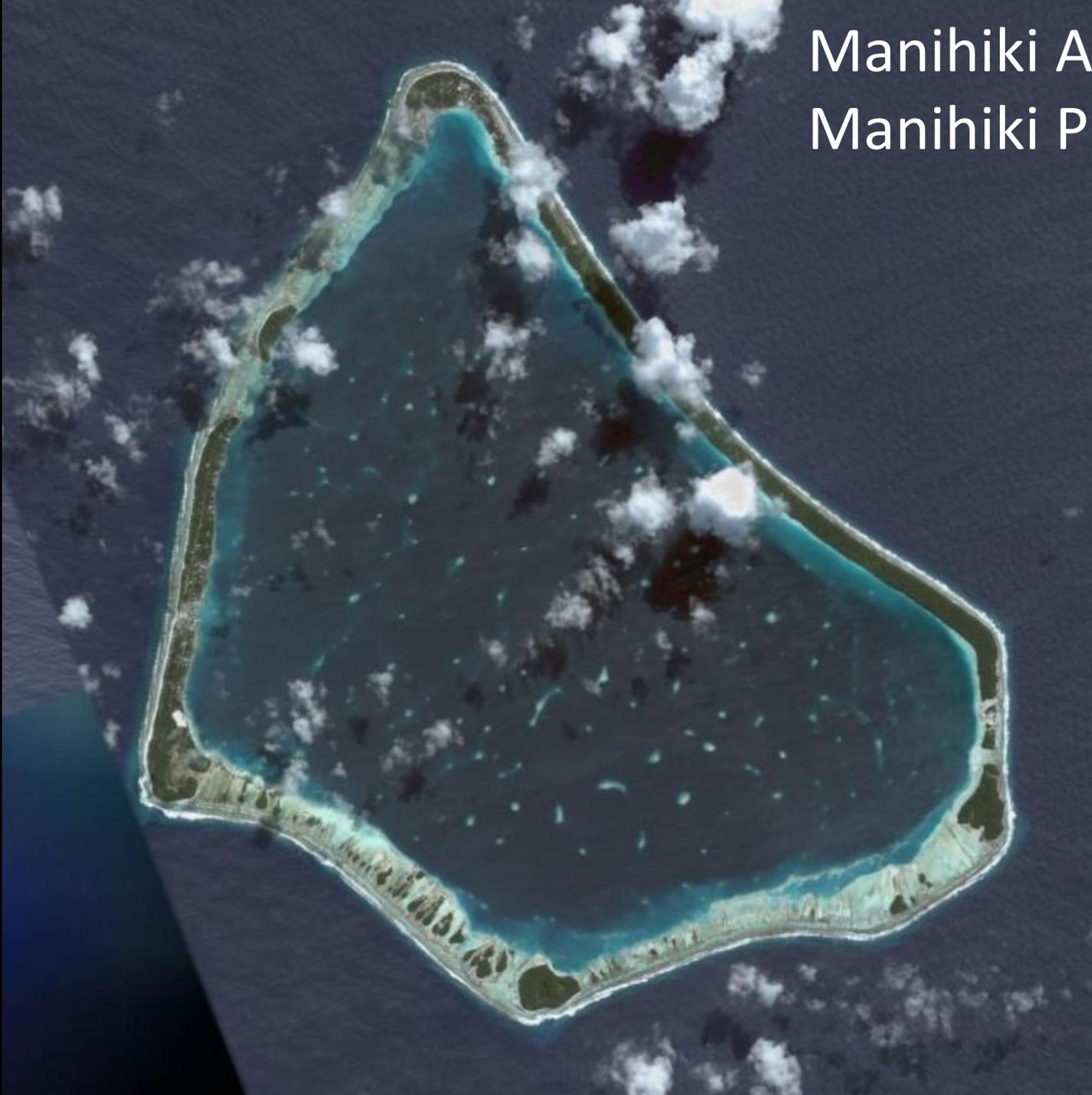
# Ontong Java Atoll, Solomon Islands



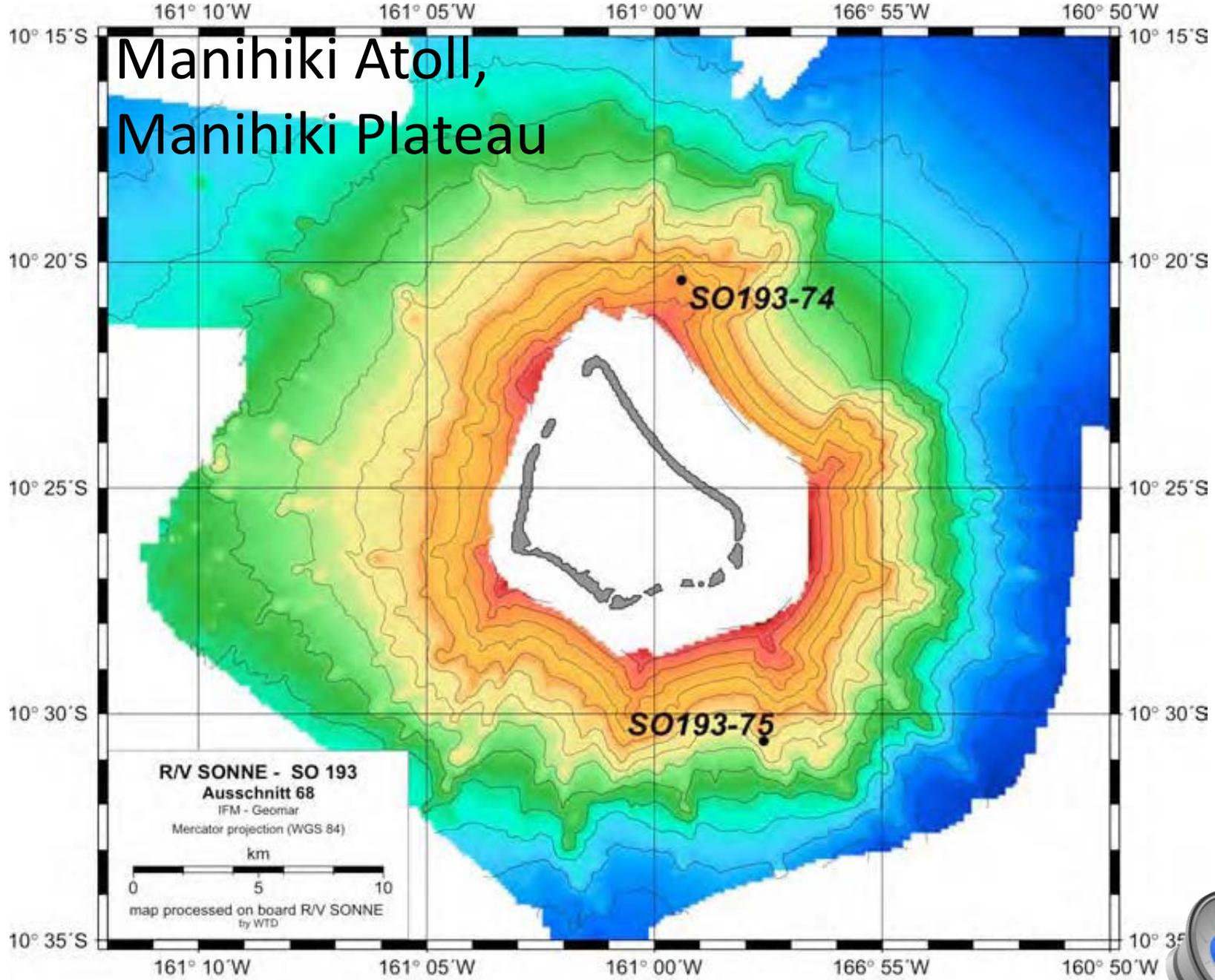
# Ontong Java Atoll, Ontong Java Plateau



# Manihiki Atoll, Manihiki Plateau

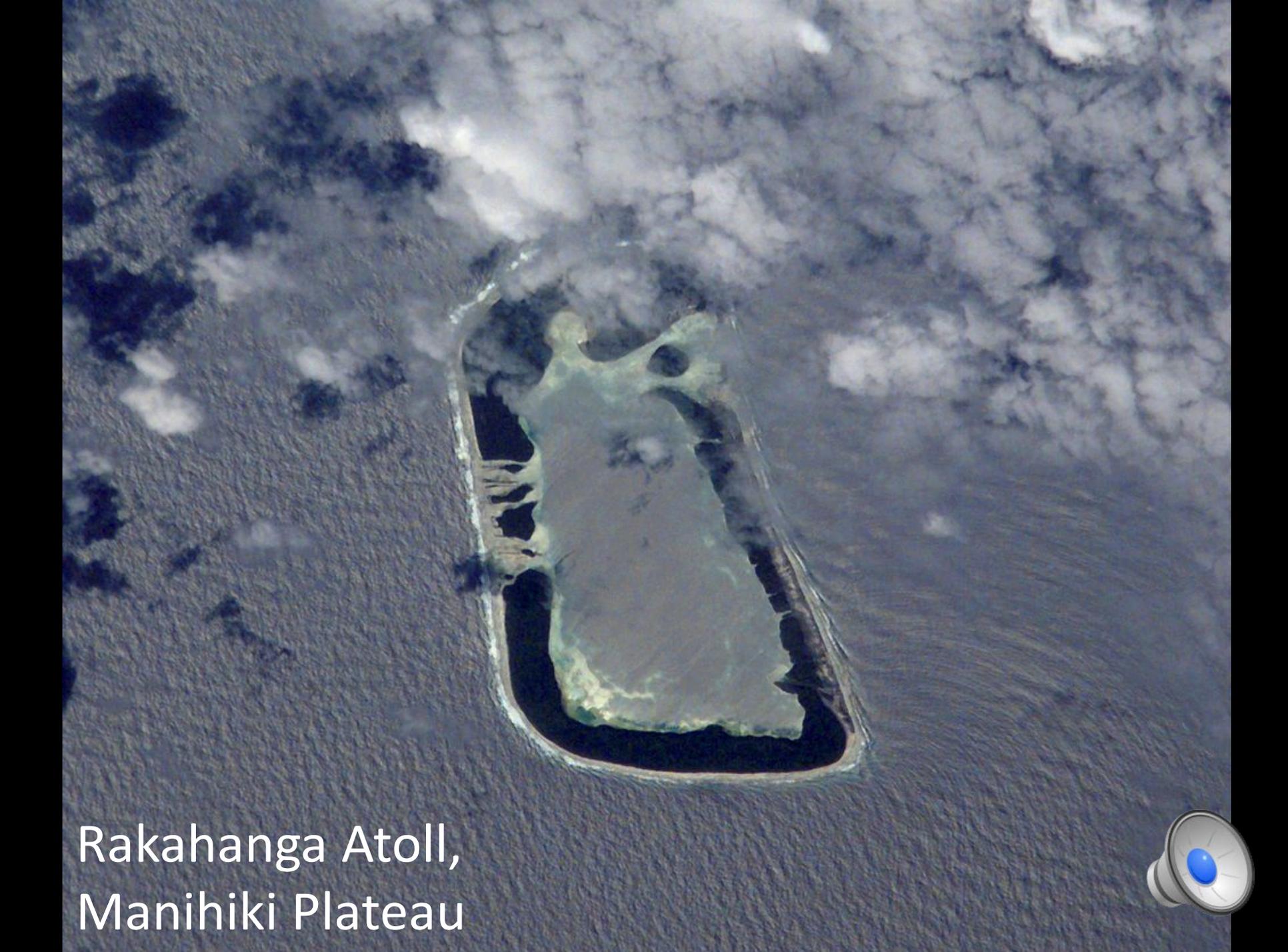


# Manihiki Atoll, Manihiki Plateau



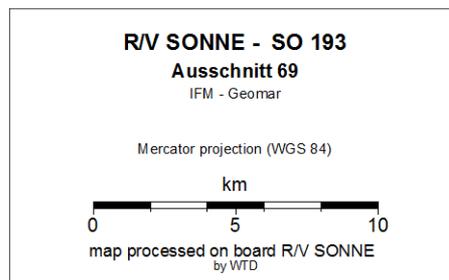
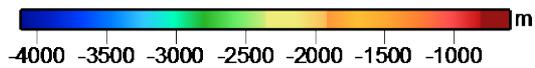
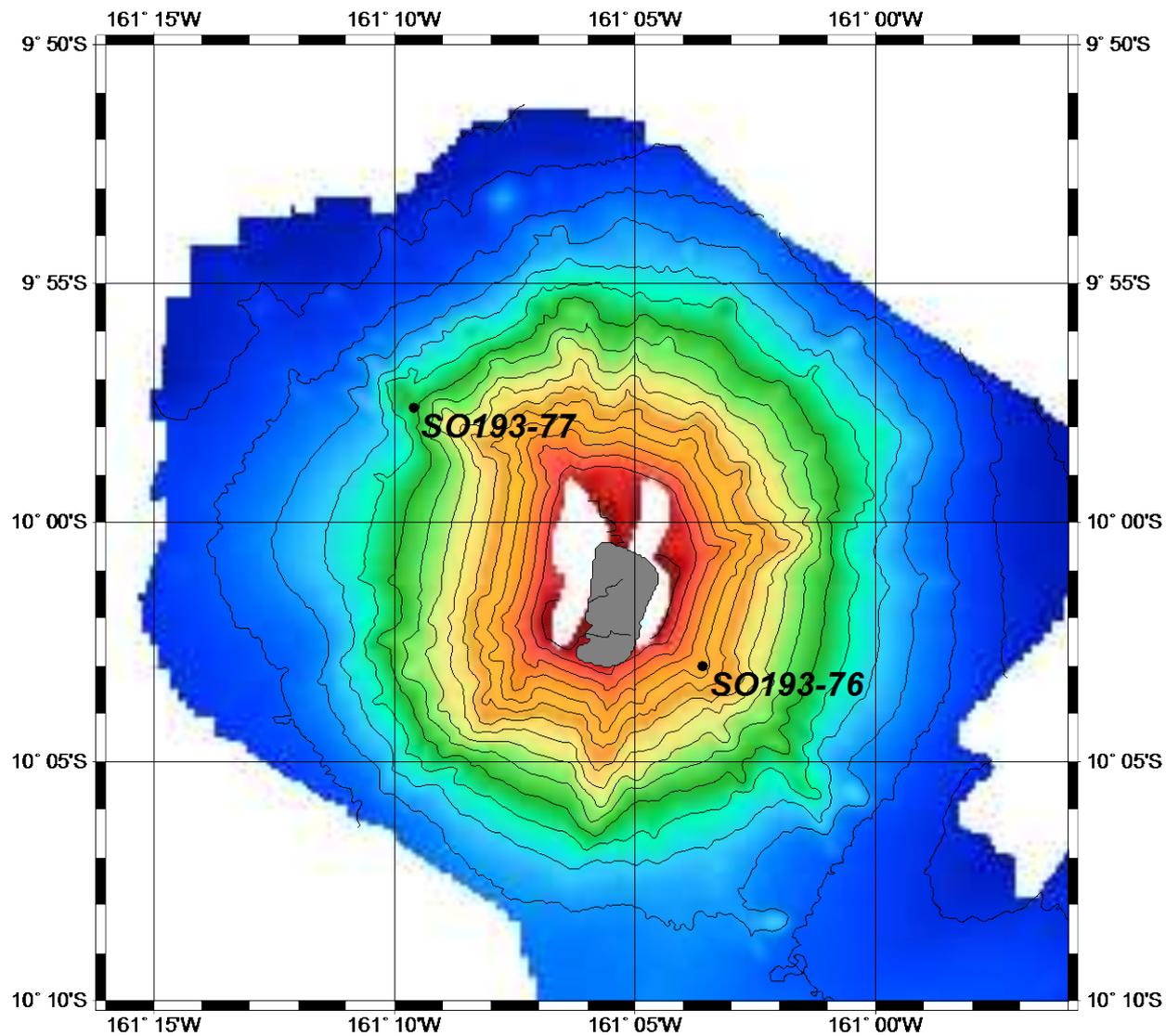
# Nukumanu Atoll, Ontong Java Plateau



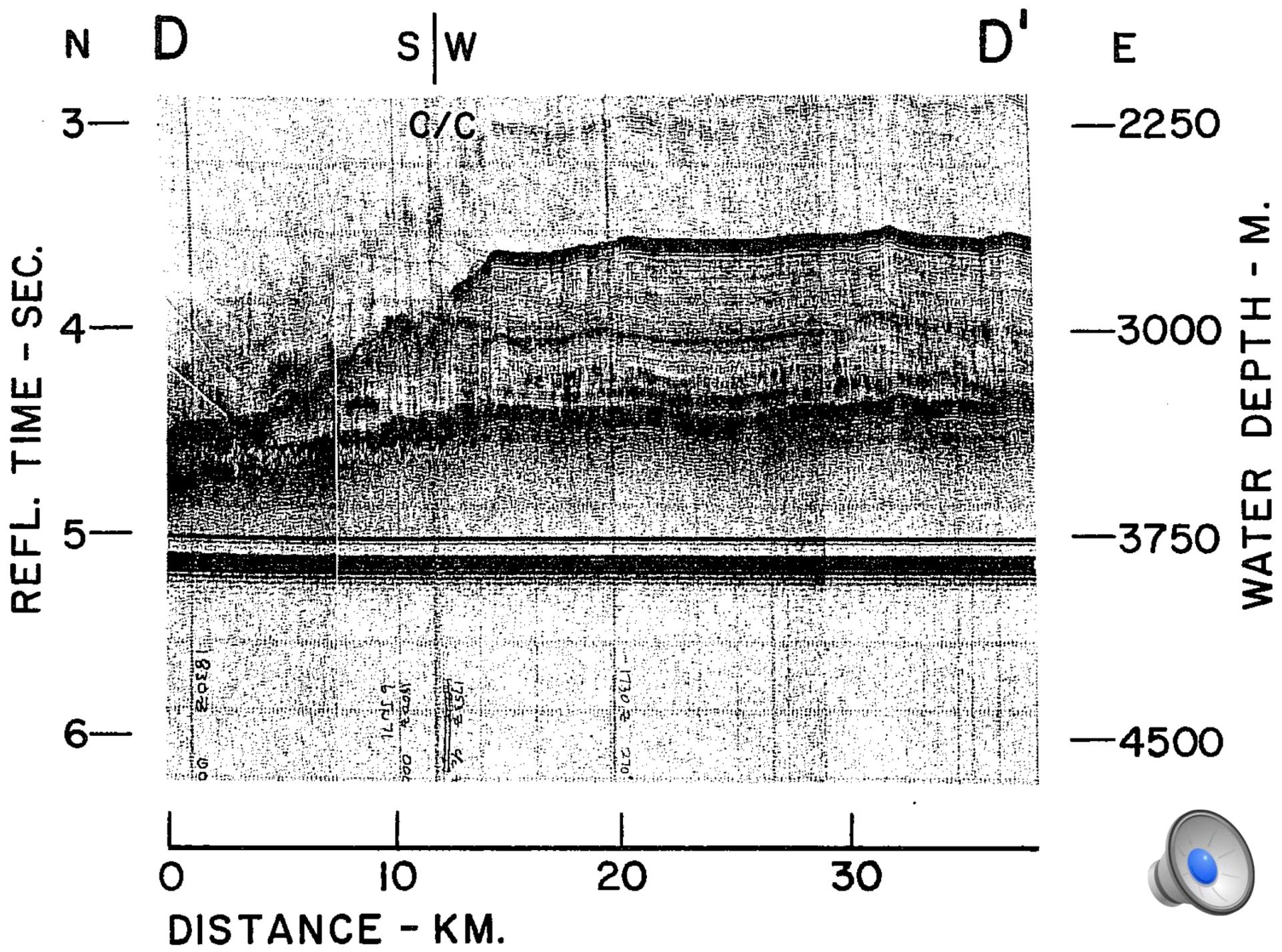


Rakahanga Atoll,  
Manihiki Plateau





# Rakahanga Atoll, Manihiki Plateau



NW E

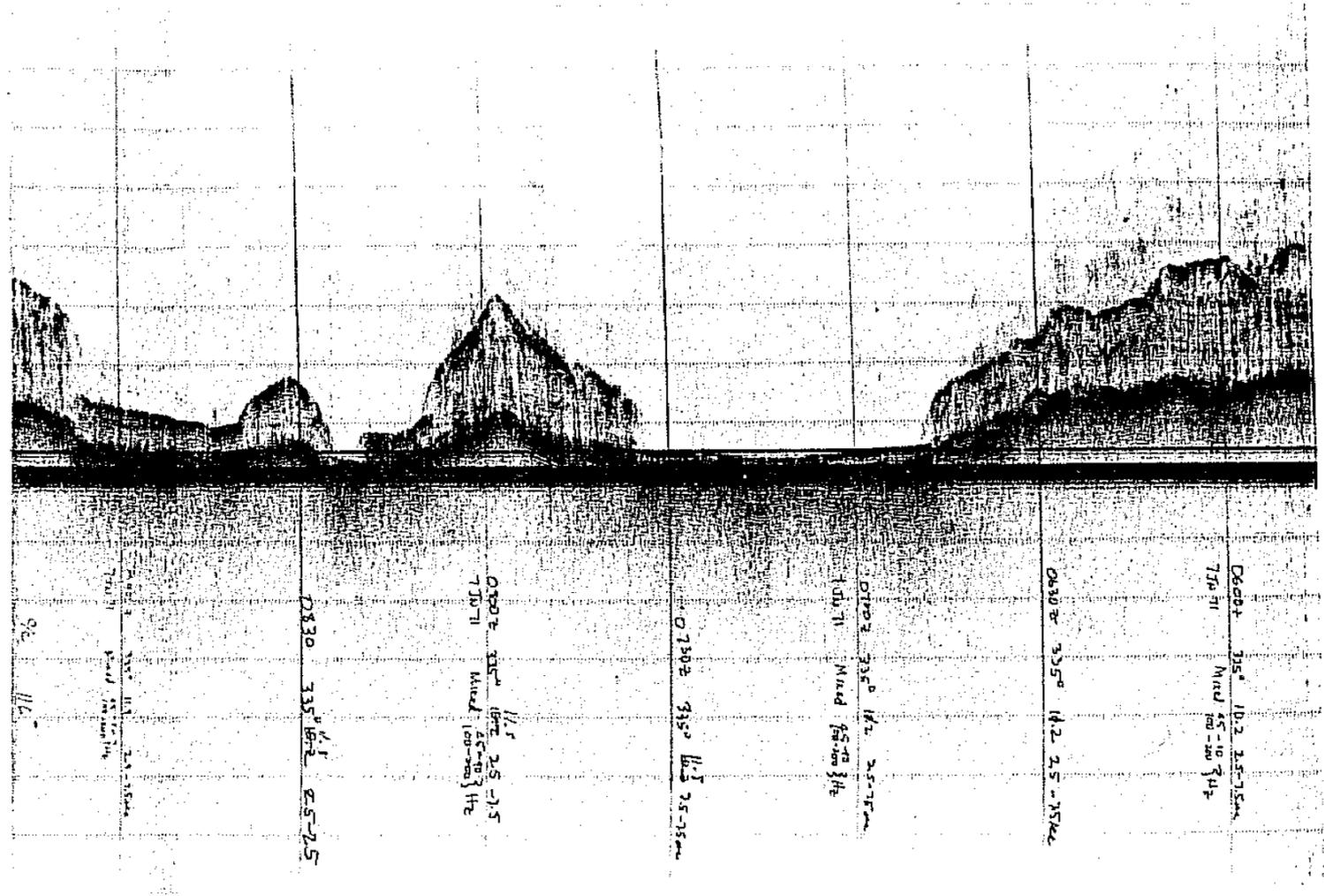
E' SE

REFL. TIME - SEC.

3  
4  
5  
6  
7

—2250  
—3000  
—3750  
—4500  
—5250

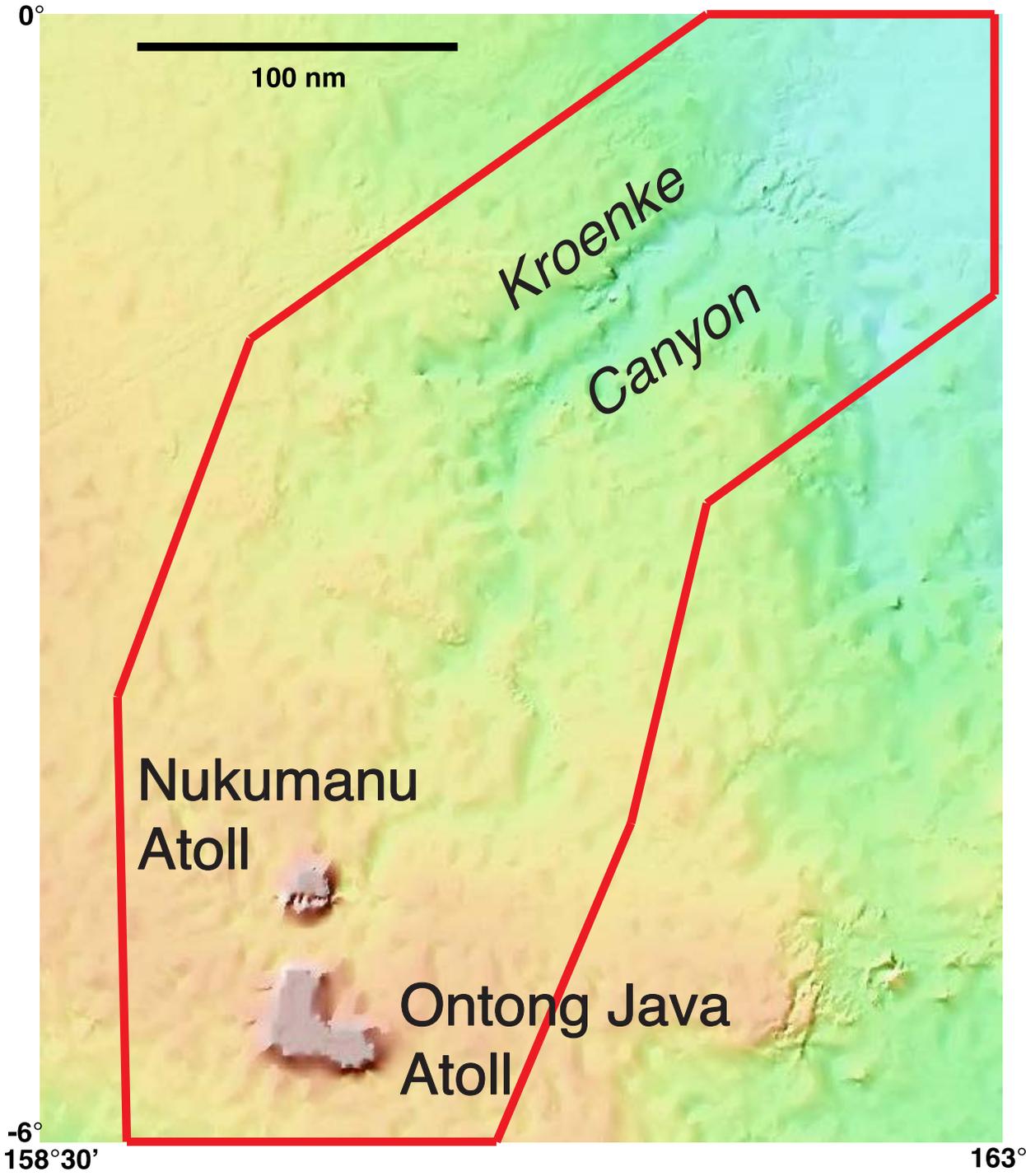
WATER DEPTH - M.



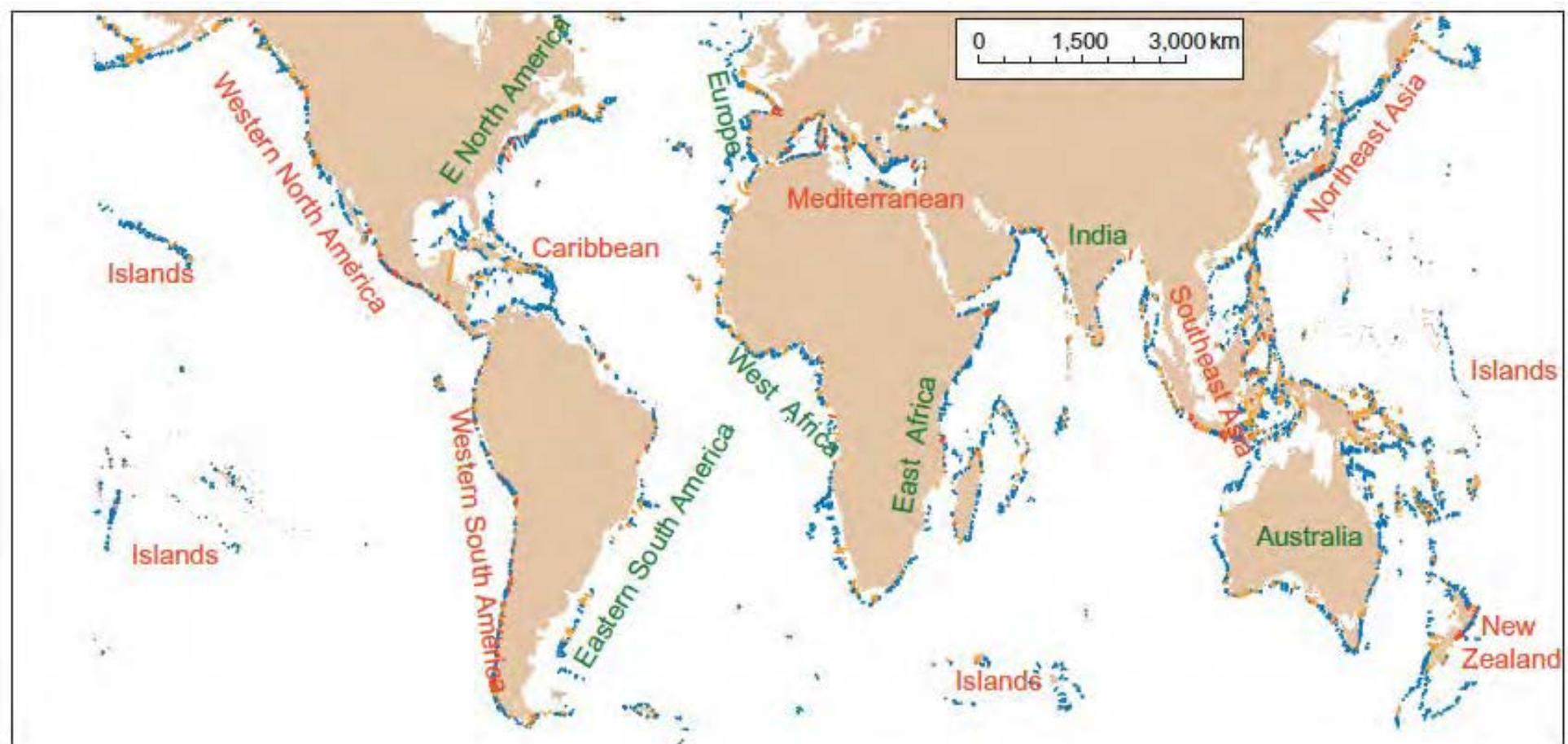
0 10 20 30 40 50 60

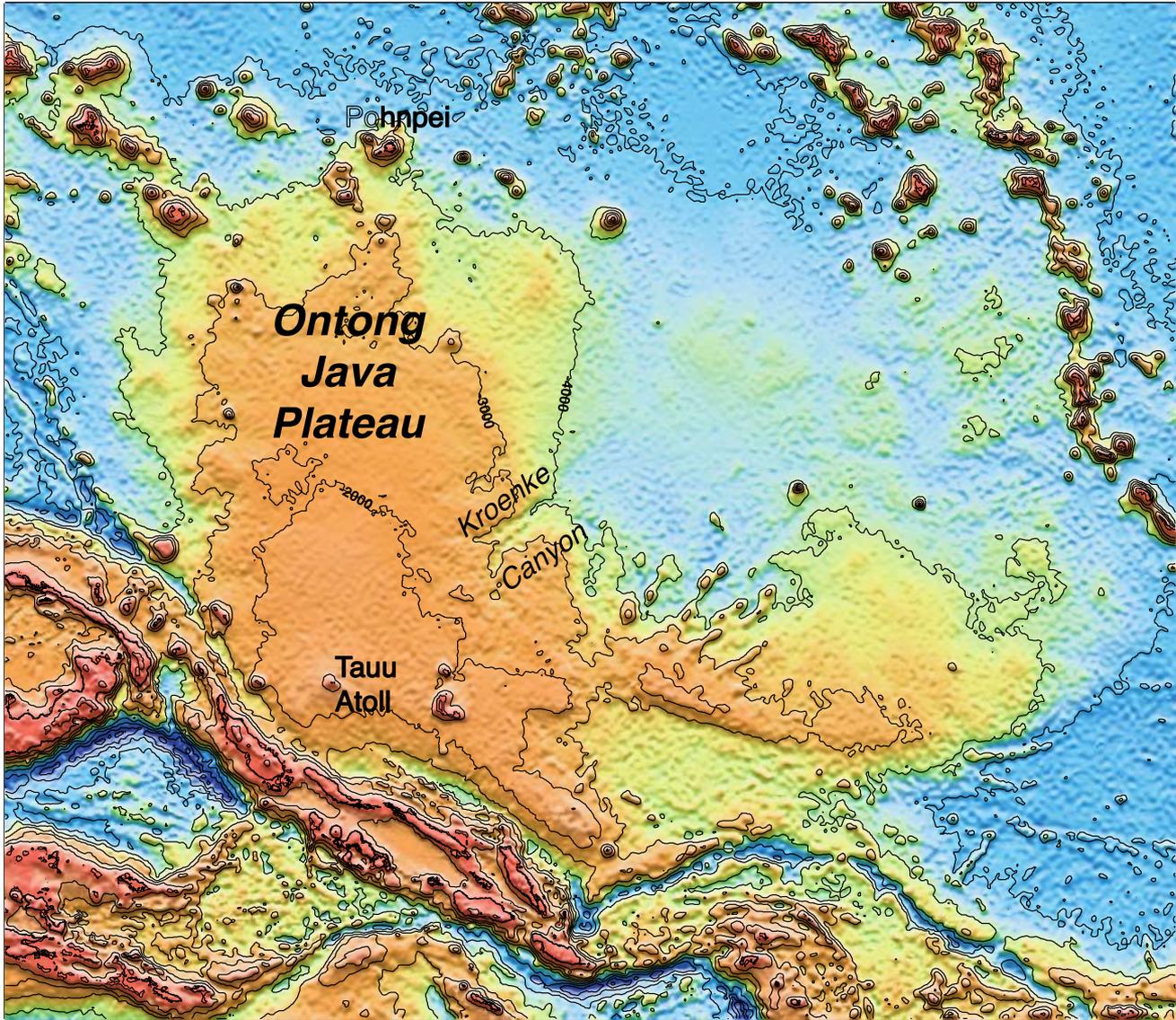
DISTANCE - KM.



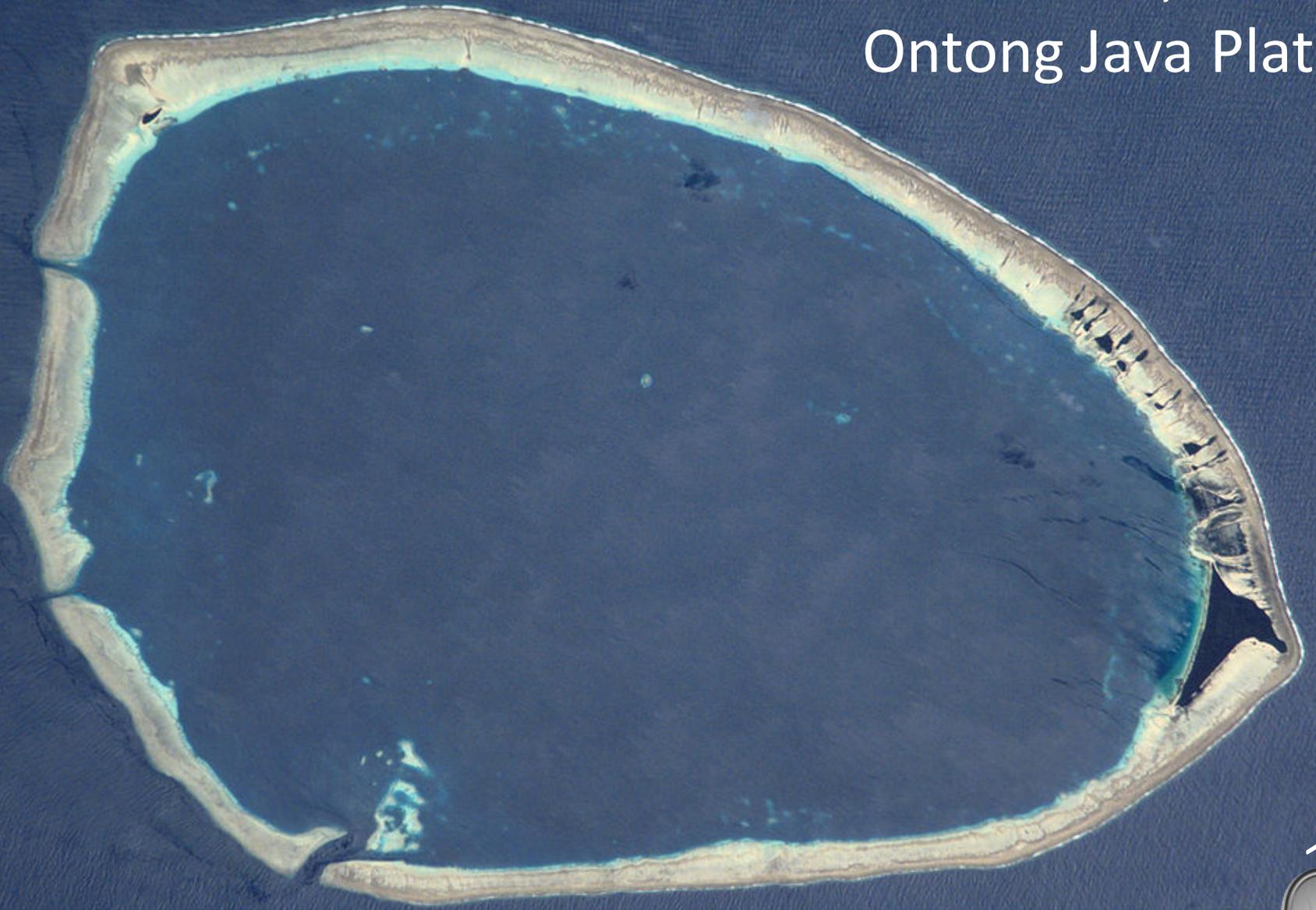


# Global Submarine Canyons



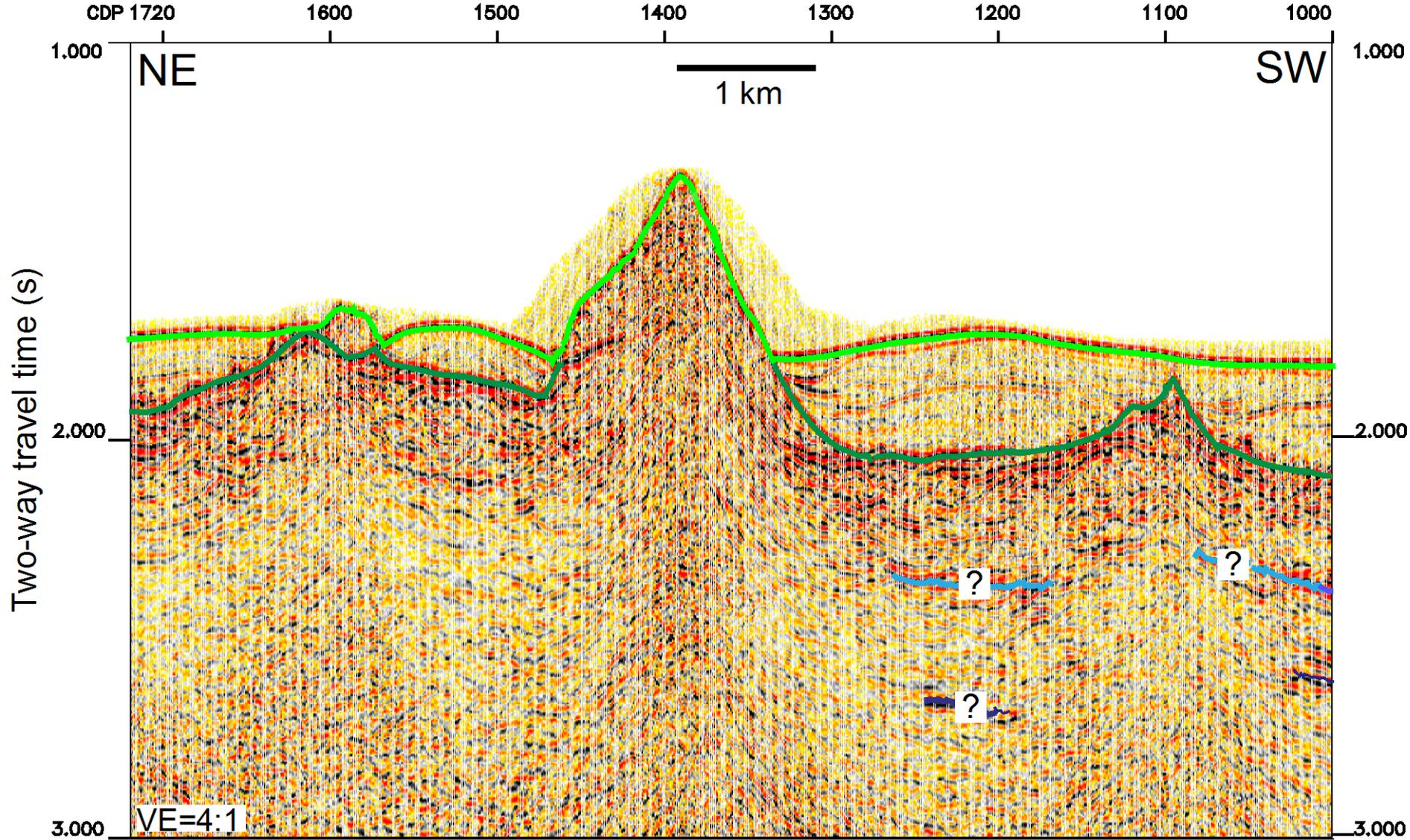


# Takuu Atoll, Ontong Java Plateau



1 m





# Summary

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  - b) the atolls and Kroenke Canyon;
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Thank you!

