# Article information:

Compactive deformation of incoming calcareous pelagic sediments, northern Hikurangi subduction margin, New Zealand: Implications for subduction processes - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0012821X23000353>

# Article summary:

1. Polygonal fault systems (PFS) are found in the incoming plate of the Hikurangi subduction margin.

2. These PFS formed at very slow rates in multiple stages and are likely associated with consolidation and dewatering.

3. The PFS will provide inherited zones of weakness and potential fracture permeability pathways for fluid migration.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article “Compactive deformation of incoming calcareous pelagic sediments, northern Hikurangi subduction margin, New Zealand: Implications for subduction processes” is a well-researched and comprehensive piece that provides an in-depth analysis of the polygonal fault systems (PFS) found in the incoming plate of the Hikurangi subduction margin. The article is based on data obtained from International Ocean Discovery Program (IODP) Expeditions 372 and 375 combined with 2D and 3D seismic reflection data, which makes it reliable and trustworthy. The authors have provided detailed information about the structure, growth history, and slip rates of normal faults identified in the incoming pelagic sedimentary sequences of the Hikurangi Margin. They have also discussed how these PFS likely formed by syneresis processes that involve diagenetically induced shear failure and volumetric contraction of the pelagic unit associated with fluid escape. Furthermore, they have estimated fault slip rates based on fault growth sequences which reveal multiple intervals of contemporaneous seafloor deformation and sedimentation.

The article does not present any biases or one-sided reporting as it presents both sides equally by providing evidence for their claims as well as exploring counterarguments to their theories. It does not contain any promotional content or partiality either as it is purely focused on providing an objective analysis of the polygonal fault systems found in the incoming plate of the Hikurangi subduction margin. Additionally, possible risks are noted throughout the article such as how these PFS will eventually be transported into the base of the accretionary wedge which could enhance geometric roughness and heterogeneity along the megathrust as well as provide inherited zones of weakness that could facilitate deformation and episodic vertical fluid migration in the lower wedge associated with microearthquakes, tremor, and slow slip events.

In conclusion, this article is reliable and trustworthy due to its comprehensive research methods used to obtain data from International Ocean Discovery Program (IODP) Expeditions 372 and 375 combined with 2D and 3D seismic reflection data as well as its lack of bias or one-sided reporting while presenting both sides equally by providing evidence for their claims as well as exploring counterarguments to their theories.

# Topics for further research:

* Hikurangi subduction margin
* Polygonal fault systems
* Syneresis processes
* Diagenetically induced shear failure
* Accretionary wedge
* Episodic vertical fluid migration

# Report location:

<https://www.fullpicture.app/item/c97b879aa7c311884995caacdec60ded>