Hydroplate Theory—problems for trench formation in the Pacific Basin

Edward Isaacs

Hydroplate Theory (HPT) is one of several models proposed in the last few decades to understand the Global Flood's initiation and later tectonic activity. It claims to explain 25 major features of the earth, including oceanic trenches. However, this article questions HPT's proposed formation mechanism for the Pacific trenches. First, the trenches are not located where predicted by HPT, and are far from their proposed origin. Second, the proposed central trench complex is missing. Therefore, HPT is unable to explain the origin of the Pacific Ocean Basin and the Pacific trenches.

Introduced in 1972 by Dr Walt Brown, the Hydroplate Theory (HPT) was developed as a biblical model for the Global Flood's initiation and subsequent tectonic activity. This model has continued to be refined in eight editions of Dr Brown's book *In the Beginning*,[1] which is soon to be in its ninth edition.[2] HPT is claimed to explain 25 major features of the earth.[3]

One topic addressed by HPT is the network of Pacific Ocean trenches.[4] Plate Tectonics (PT) and its creationist form, Catastrophic Plate Tectonics (CPT), present these features as subduction zones, where lithospheric plates had catastrophically moved (CPT) or steadily moved (uniformitarian PT), and continue to gradually move, into the mantle. In contrast, HPT proposes that a complex sequence of unique events occurred at the time of the Flood which formed the Pacific trenches (table 1).

This study used Google Earth seafloor images to estimate the location of HPT's proposed central trench complex, and compared those expectations to the actual seafloor trench features.

Overview of Hydroplate Theory

HPT sets out a unique set of initial conditions prior to the Flood. The model proposes an interconnected shell of subterranean water, approximately 1.6 km thick, separating a 100-km-thick upper granitic crust from an underlying zone of basalt (figure 1). It is assumed that from years of tidal pumping from the moon, this subterranean water had become supercritical, a phase when liquid water is "at a temperature and pressure above its critical point, where distinct liquid and gas phases do not exist".[5]

At the onset of the Flood, crustal failure caused the supercritical water to jet out, forming cracks in the overlying granite layer. HPT has these jets of water as the fountains of the great deep described in Genesis 7:11. The combined work of the fountains of the great deep and the rain it produced began the inundation of the continents (figure 2A). This upward surge of water caused massive erosion of the granitic crust, which resulted in the separation of the continents.

Eventually a critical point was reached where the granite crust was eroded so far apart that the underlying basalt buckled upward from the lack of the overlying pressure. This is claimed to have formed the Mid-Atlantic Ridge, or MAR (figures 2B and 2C).

Magma in near proximity would then have rushed to the MAR to fill the void space created when it uplifted (figures 3 and 4). This shifting of magma caused the magma on the opposing side of Earth (the Pacific Basin) to flow inward, causing the Pacific oceanic crust to down-buckle. Where the oceanic crust down-buckled it formed the central trench complex, the antipode to the rising MAR (figure 4). Because of the stress placed on the unsupported Pacific crust, it quickly collapsed and sheared (faulted) along its boundary, forming the Ring of Fire, or the boundary trench complex.

HPT further proposes that while the central trench complex was forming in the Pacific Basin, the granite continents slid laterally to their current locations, with some continental collisions producing the major mountain ranges we have today.

Plotting the central trench complex based on the MAR

One of the major features predicted by HPT is the development of the central trench complex (figure 4). Dr Brown states:

> "Further shrinkage in the inner earth caused the Pacific crust, surrounded by what is now call [*sic*] the Ring of Fire, to begin sinking. Portions of the Pacific crust directly opposite the center of the rising Atlantic floor buckled inward, forming trenches."[6]

Furthermore:

"By the end of the flood phase, the Pacific plate's sagging foundation had fractures in millions of places, and the magma generated along the deep sliding surfaces instantly contracted. Therefore, the Pacific plate, lacking support, rapidly subsided and sheared around its perimeter—now called the *Ring of Fire*."[7]

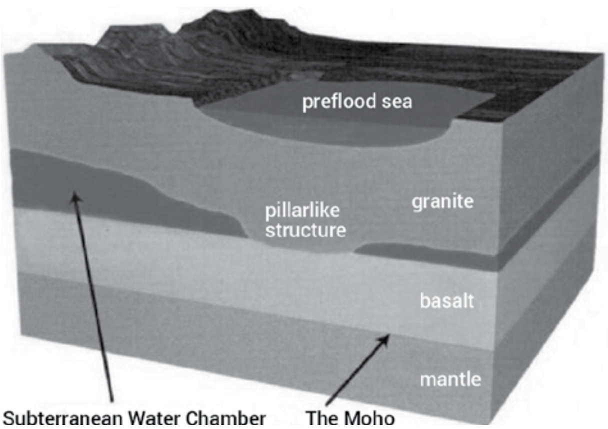

Figure 1. Representation of the Hydroplate Theory's proposed pre-Flood Earth's initial condition crustal structure (from Brown, ref. 2, figure 55 on p. 126)

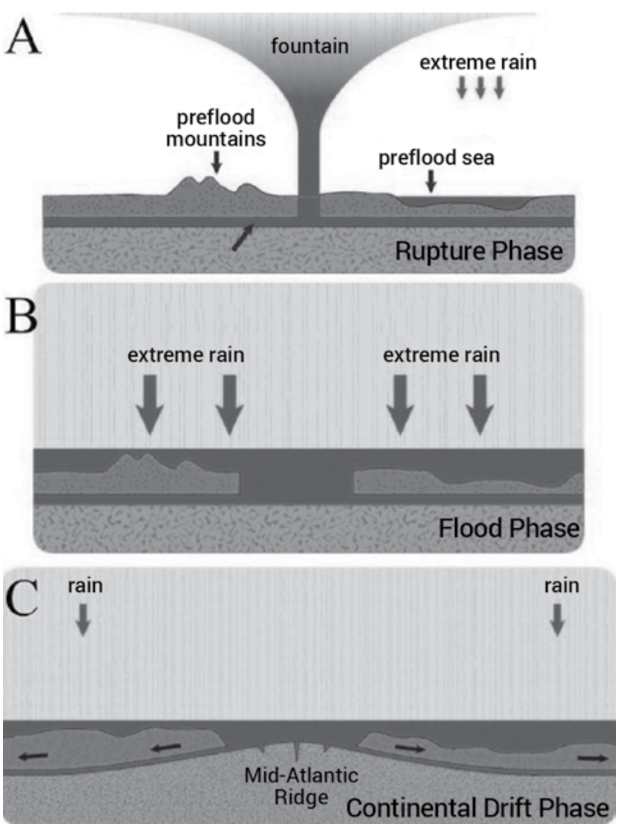

Figure 2. HPT's proposed phases: (A) the Rupture Phase—the fountains of the deep rupture, initiating the Flood; (B) the Flooding Phase; and (C) the Continental Drift Phase including uplift of MAR. (From Brown, ref. 2, figures 57, 60, and 64, pp. 127, 131, and 133.)

These statements identify two major locations for trench formation. The first class of trenches would buckle downward concomitant with the rising MAR on the other side of the earth. These trenches would form in the centre of the Pacific Basin, at the location identified by HPT as the central trench complex (figure 4). A second group of trenches would form at the Pacific Basin's perimeter, identified by HPT as the boundary trench complex, or shear trenches. These trenches would comprise the circum-Pacific belt trenches, or the Ring of Fire. These boundary trenches differ from Plate Tectonic trenches because HPT postulates that the Pacific Basin sank and sheared apart from the surrounding crust, constituting the Pacific Basin as one 'plate', while Plate Tectonics theory proposes multiple plates subducting into the earth along the Pacific's perimeter.

HPT's predictions for the location and the orientation of the central trench complex in the Pacific Basin can be used to plot the region directly opposite the MAR. This has been performed by plotting the MAR in the Atlantic (figure 5), followed by plotting the antipodes, shown in figure 6.

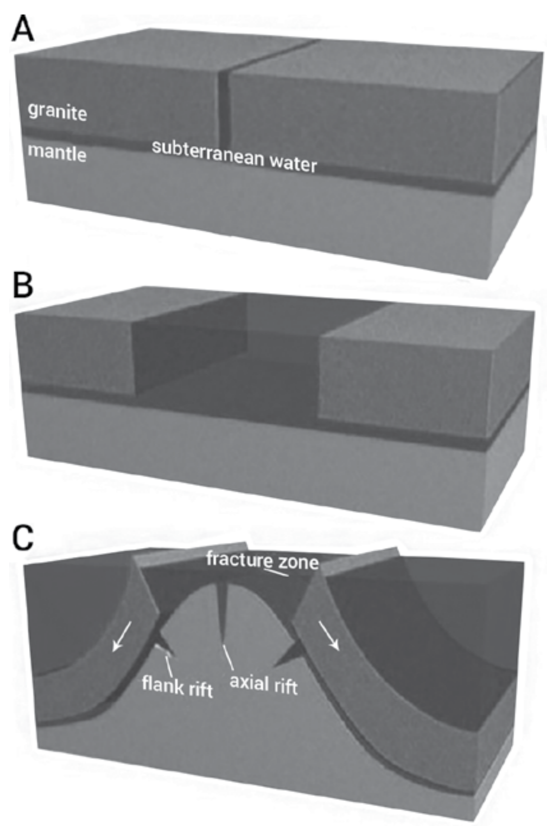

Figure 3. Proposed HPT formation of the MAR: (A) rupture and release of supercritical water; (B) rupture erodes laterally; and (C) uplift of MAR by buckling basaltic layer caused by absence of granitic overburden. (After Brown, ref. 2, figure 66, p. 134.)

The markers used in figure 6 denote the location opposing the MAR, showing where the predicted location of the central trench complex should be located. The plot indicates the close association of the central trench complex with several Western Pacific trenches. Beginning with the northernmost marker, Marker A, the plot begins in modern-day Siberia. Then moving south, it moves west of Japan and the Japan Trench (Marker B). Next, the plot cuts across Mariana Trench to the south-west. It continues south-eastward until it reaches the southern tip of New Zealand (Markers C to G), before terminating over 2,400 km north of Antarctica (Marker H).

Where should the central trench complex be in the Pacific Basin?

The central Pacific (figure 7) is the ideal location for HPT's central trench complex, with the western and eastern boundary trenches (formed from shearing) roughly equally apart from the central trench complex. However, since the MAR is not always in the centre of the Atlantic Basin, the location of the central trench complex may vary by an equal distance. An antipode of the actual MAR (figure 8) would transect Hawaii, then move east to subsequently proceed southward. Near the equator, it would again trend east, then south once more before making a sharp turn east less than 2,500 km north of Antarctica.

A comparison of this predicted location with the Pacific seafloor demonstrates the absence of any central trench complex, as there is no equivalent feature that transects the Hawaiian Islands. Nor is there any further south, at locations like Kiribati and the Line Islands, or near the Tuamotu Ridge, east of French Polynesia. The predicted trench complex terminates in the South Pacific near a large oceanic ridge, the

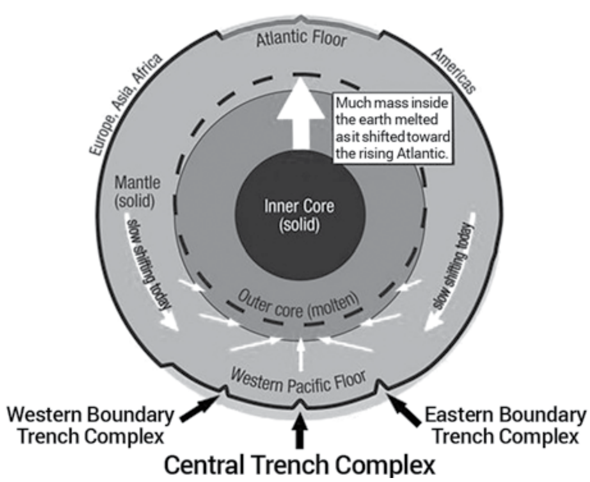

Figure 4. HPT mechanism forming two types of Pacific trenches: (1) central trench complex mirroring MAR and (2) boundary trench complex formed by shearing as the Pacific Plate shifted towards the MAR, shearing (faulting) at its boundary. (After Brown, ref. 2, figure 85, p. 157.)

Table 1. Summary of the chronology of Hydroplate Theory

HPT Period	Geological Events
Creation	God creates Earth's pre-Flood structure (basalt basement rock overlain by interconnected water chambers and granitic crust).
Pre-Flood period	Subterranean water becomes supercritical.
The Flood: Rupture Phase	Granitic crust cracks, allowing subterranean water to jet out (fountains of the great deep) and inundate the continents. Crack encircles Earth in two hours.
The Flood: Flood Phase	Subterranean water continues to inundate the continents. Floodwaters rise.
The Flood: Continental Drift Phase	Mid-Atlantic Ridge (MAR) buckles upward, forming antipode Pacific trenches. Continents slide away from the MAR.
The Flood: Compres-sion Event	Mountains form from the collisions and halting of the hydroplates during the Continental Drift Phase. Continents rise above the floodwaters causing the floodwaters to recede.
Recovery Phase	Floodwaters recede from the continents, ending the Flood. Continents begin to stabilize. The Ice Age begins. Phase continues to the present.

Table 2. Overview of data from figure 6. Respective markers and their status for the Hydroplate Theory are given.

Marker	Challenges to the Hydroplate Theory
A. Arctic Circle by 165° East	Located on the NE Eurasian Hydroplate
B. 40° North by 150° East	Incorrect location in Pacific Basin
C. Tropic of Cancer by 135° East	Incorrect location in Pacific Basin and wrong association to large ridge
D. 10° North by 140° East	Incorrect location in Pacific Basin and wrong association to ridge
E. 0° by 160° East	Incorrect location in Pacific Basin
F. Tropic of Capricorn by 165° East	Incorrect location in Pacific Basin
G. 45° South by 165° East	Incorrect location in Pacific Basin
H. 53° South by 155° West	Incorrect location in Pacific Basin and wrong association with oceanic ridge

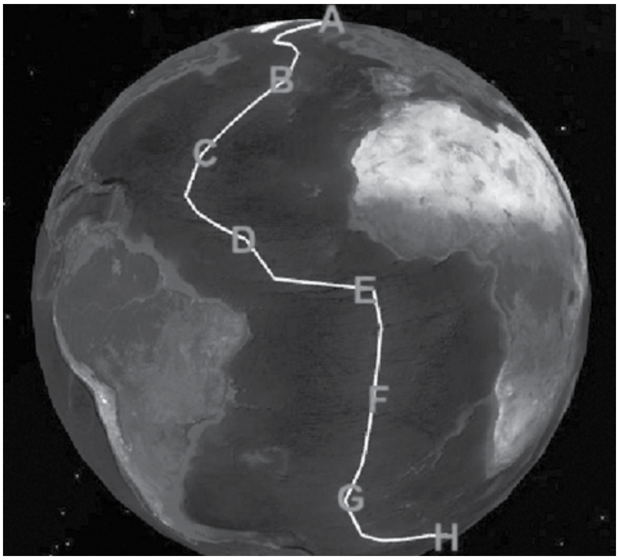

Figure 5. Proposed approximate motion of MAR. See table 2 for marker locations. (From Google Earth.)

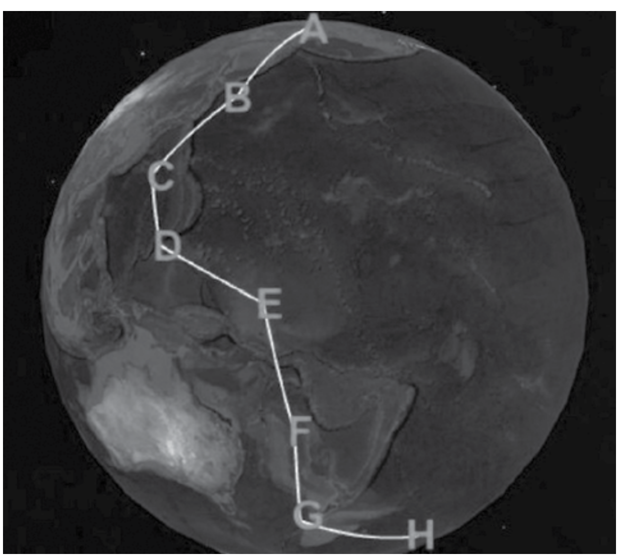

Figure 6. Mirror image of MAR plotted on Google Earth image (see table 2)

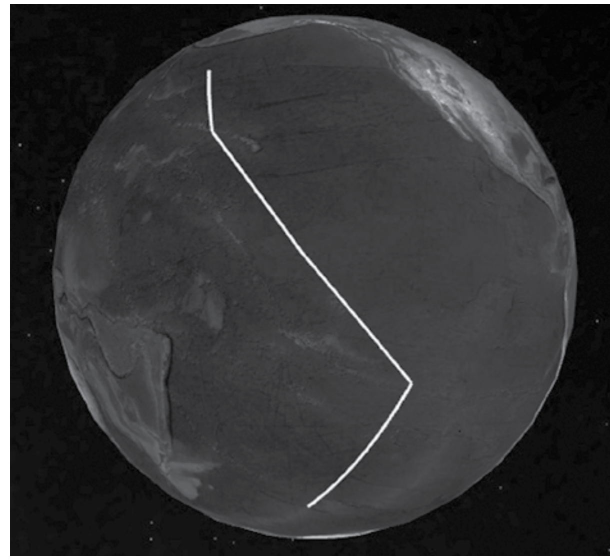

Figure 7. An approximation of the centre of the Pacific Basin is shown in the central line. It is along this line that the central trench complex (see figure 4) is most likely to be found. (After Google Earth.)

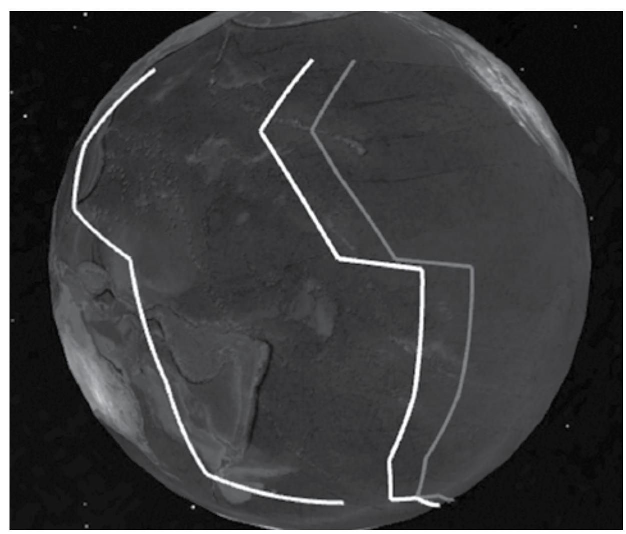

Figure 8. Picture showing Hydroplate Theory's predicted antipodal position for the central trench complex based on the MAR (far-left line) contrasted to where the central trench complex should be if HPT formed the Pacific Basin (middle-right two lines). Notice also the lack of a central trench complex where HPT would need it to be in order to form the Pacific Basin (centre lines). (After Google Earth.)

association of the postulated trench complex and an oceanic ridge system itself not predicted by HPT theory.

Can Hydroplate Theory explain the lack of a central trench complex in the central Pacific?

Figure 8 illustrates two important challenges to HPT:

1. HPT's proposed area for the central trench complex (Western Pacific) is far from where it should be in the central Pacific, and
2. Where the central trench complex *should* be (see above section), HPT's proposed central trench complex is found to be completely absent from the Pacific Basin.[8]

Although both points are challenging, HPT has a partial answer for the latter. HPT postulates that large lava flows covered the Pacific Basin during the compression event.[9] However, this explanation presents other challenges:

1. As the inverse of the MAR, the Pacific central trench complex should be extremely large and thus require copious amounts of lava to fill it. And even if the central trench complex was covered by lava flows it should be visible on seismic data.

2. Why would lava only cover the central trench complex? Why not other prominent trenches, especially boundary trenches since they too would have been in regions of extreme faulting and presumed magma generation?
3. These megaregional lava flows would create an excessive heat generation problem for HPT similar to that proposed for Catastrophic Plate Tectonics.[10,11,12]

Could the Western Pacific trenches compose the central trench complex?

Is it possible that the Western Pacific trenches like the Tonga Trench are not boundary trenches but comprise all or a portion of the central trench complex? While this suggestion would appear to solve the lack of HPT's proposed central trench complex in the centre of the Pacific Ocean, several inconsistencies and challenges would arise.

First, Dr Brown stated: "Large shearing offsets that reached the Pacific floor formed ocean trenches. [Wadati-] Benioff zones [places where mantle imaging shows the presence of what is interpreted as cold crust] under trenches are shearing surfaces (fault planes)."[7] Therefore, the Tonga trench tomography (mantle imaging) is explained as shearing at the Pacific Basin's rim, which demonstrates that the Western Pacific trenches do not comprise the central trench complex predicted by HPT. Likewise, the Ring of Fire is proposed to have formed from shearing at the Pacific Basin's boundary, further demonstrating that the Western Pacific trenches do not compose the central trench complex.

Second, while the plot showing the predicted location of the central trench complex opposite the MAR (figure 6) correlates well with the Western Pacific trenches from Markers A to E, the trenches and the plot diverge in moving further south. Continuing south, both the trenches and the plot become more perpendicular to the other, instead of continuing parallel as would be expected by HPT.

Another reason that the Western Pacific trenches do not represent the central trench complex is that the western boundary trenches would have to extend beneath central Africa. This creates several additional difficulties:

1. The western boundary trenches would be merely 40° Earth circumference from the Mid-Atlantic Ridge (MAR). HPT does not predict the buckling upward of the MAR to create a basin 260° wide (72% Earth's surface). Critics have questioned if the rising of the MAR could even form the Pacific Basin,[13] much less a basin twice as large.
2. A fundamental problem arises where the western boundary trenches and the south-east MAR/Indian Ocean Triple Junction would coincide in location, the association of a trench complex and an oceanic ridge system being contradictory to HPT predictions.
3. Similarly, if the western boundary trenches were beneath central Africa, then they would not be the antipode from the MAR. For example, at the equator, westward of the MAR the trench complex is 60° (6,800 km) away, while to the east the trench complex would only be 40° (4,400 km) away. This lack of symmetry between the proposed boundary trenches to the east and west of the MAR shows the unlikelihood of the up-buckling of the MAR to create these trenches as components of the central trench complex.

Further challenges to the proposed central trench complex being located in the Western Pacific

Although the proposed central trench complex could be linked with several trenches in the West Pacific, the HPT proposal faces several difficulties (table 2). First, although Marker C (figure 6) associates between the Izu-Ogasawara and Mariana trenches to the east and the Ryukyu Trench to the west and north-west, the marker is only 200 km east of the large seamount range Kyushu-Palau Ridge, as well as the smaller ridges Okidaito and Daito in the west and north, respectively. The presence of these large ridges surrounding Marker C is contrary to the HPT-predicted trench (figure 9). Similarly, though Marker D correlates well with the small Yap Trench in the west and Mariana Trench in the north, Marker D also correlates to several large seamount ranges in the north, west, and south, one of the largest ridges being Lapulapu near the Northern Mariana Islands.

Although the mid-Pacific region is the predicted location for the postulated central trench complex, the West Pacific location is indeed the case for virtually all the markers of the proposed central trench complex. Not only is Marker A nowhere near the central Pacific, it is of little relevance. Located in north-eastern Siberia, it is overlain by continental crust; at best, it must be assumed that this hydroplate slid across the trench during the continental drift phase (figure 2C). Markers B, E, F, and G are all far from the central Pacific. Marker H is the only marker that corresponds to both a trench and is near the centre of the Pacific. However, this

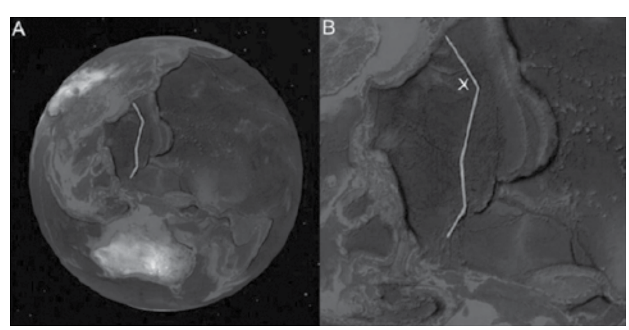

Figure 9. Example where: (A) proposed HPT trench is located near seamount range Kyushu-Palau Ridge (vertical line), with (B) closer view of the ridge. 'X' denotes location of Marker C. (From Google Earth.)

trench is associated with a transform fault emanating from the mid-ocean ridge 2,600 km north of Antarctica. Table 2 provides a summary of the challenges to this location being the central trench complex.

Conclusions

Although the western circum-Pacific trench belt has been used as evidence of HPT,[14] the trenches are more problematic than have been previously thought.

First, while it has been shown that the proposed central trench complex (figure 4) is near several trenches comprising the western boundary trench complex, it also plots atop seamount ridges and ocean ridges, contradicting HPT predictions.

The central trench complex is supposed to be located exactly opposite the MAR, in the centre of the Pacific Basin. In this article, it has been shown that the antipode of the MAR associates with the western boundary trenches, instead of in the centre of the Pacific Basin. Simply stated, there is no central trench complex in the Pacific Basin as proposed by HPT.

These issues challenge HPT's overall plausibility—a theory claiming to address nearly all tectonic features, such as oceanic trenches, all around the earth. Further development of HPT is necessary to defend it using actual conditions and not model predictions. If this cannot be done empirically, then Hydroplate Theory may need to be rejected as a possible biblical Flood model.

Acknowledgements

From researching to writing to publishing, an article requires much effort from more than one individual. I thank the many anonymous reviewers for their support during the project and their careful reviews of the paper. However, any mistakes remaining are my own. Glory to God in the Highest! Proverbs 11:14.

References

1. Brown, W., *In the Beginning: Compelling evidence for Creation and the Flood*, 8th edn, Center for Scientific Creation, Phoenix, AZ: 2008.
2. Brown, W., *In the Beginning: Compelling Evidence for Creation and the Flood*, 9th edn, CD-ROM, Center for Scientific Creation, Phoenix, AZ, 2017.
3. Brown, ref. 2, p. 113. These 25 major features of the earth are explained on pp. 113–124.
4. A whole chapter discusses the formation of the Pacific trenches. See Brown, ref. 2, The origin of ocean trenches, earthquakes, and the Ring of Fire, pp. 154–194.
5. Supercritical fluid, en.wikipedia.org/wiki/Supercritical_fluid, accessed 1 January 2018.
6. Brown, ref. 2, p. 155.
7. Brown, ref. 2, p. 159.
8. There are many trenches in the Pacific Basin that are not directly classified in the Ring of Fire. However, the trenches in the east (trenches which associate with the Juan de Fuca Plate trenches) are inadequate support for HPT, as they do not conform to the predicted manner of the central trench complex. While there are other trenches in the South Pacific, these associate with the South Pacific oceanic ridge system, therefore offering no support for HPT.
9. Brown, ref. 2, pp. 158–160.
10. Baumgardner, J.R., The imperative of non-stationary law in relation to Noah's Flood, *CRSQ* **27**:98–100, 1990.
11. Froede, C.R., Jr., The heat issue within Catastrophic Plate Tectonics, *CRSQ* **35**:46–47, 1998.
12. Baumgardner has proposed the possibility of excessive heat generation problems for all our current Flood models. See Baumgardner, J., Dealing carefully with the data, *J. Creation* **16**(1):68–72, 2002.
13. Oard, M.J., Analysis of Walt Brown's Flood model, creation.com/hydroplate-theory, 7 April 2013.
14. Nickel, B., *Hydroplate Theory overview: part 6*. www.youtube.com/watch?v=xayjxQOsexM&t=703s, accessed 2 November 2017.

Edward Isaacs *is a keen student of the sciences, especially geology. He has devoted the last seven years to intensive studies of Creation Science, primarily focusing on topics on the Genesis Flood and subsequent Ice Age. As a creation researcher, writer and speaker, Edward is very active in creation ministry and education and is a member of the Creation Research Society.*