

Plausible explanations for two major events in Earth history

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Two Major Events in Earth History



Event 1: simultaneous asteroid impacts approximately 65 million years ago changed Earth's landscape in minutes

Event 2: Comet impact approximately 460,000 years before present adds two miles to ocean depths

The simultaneous asteroid impacts

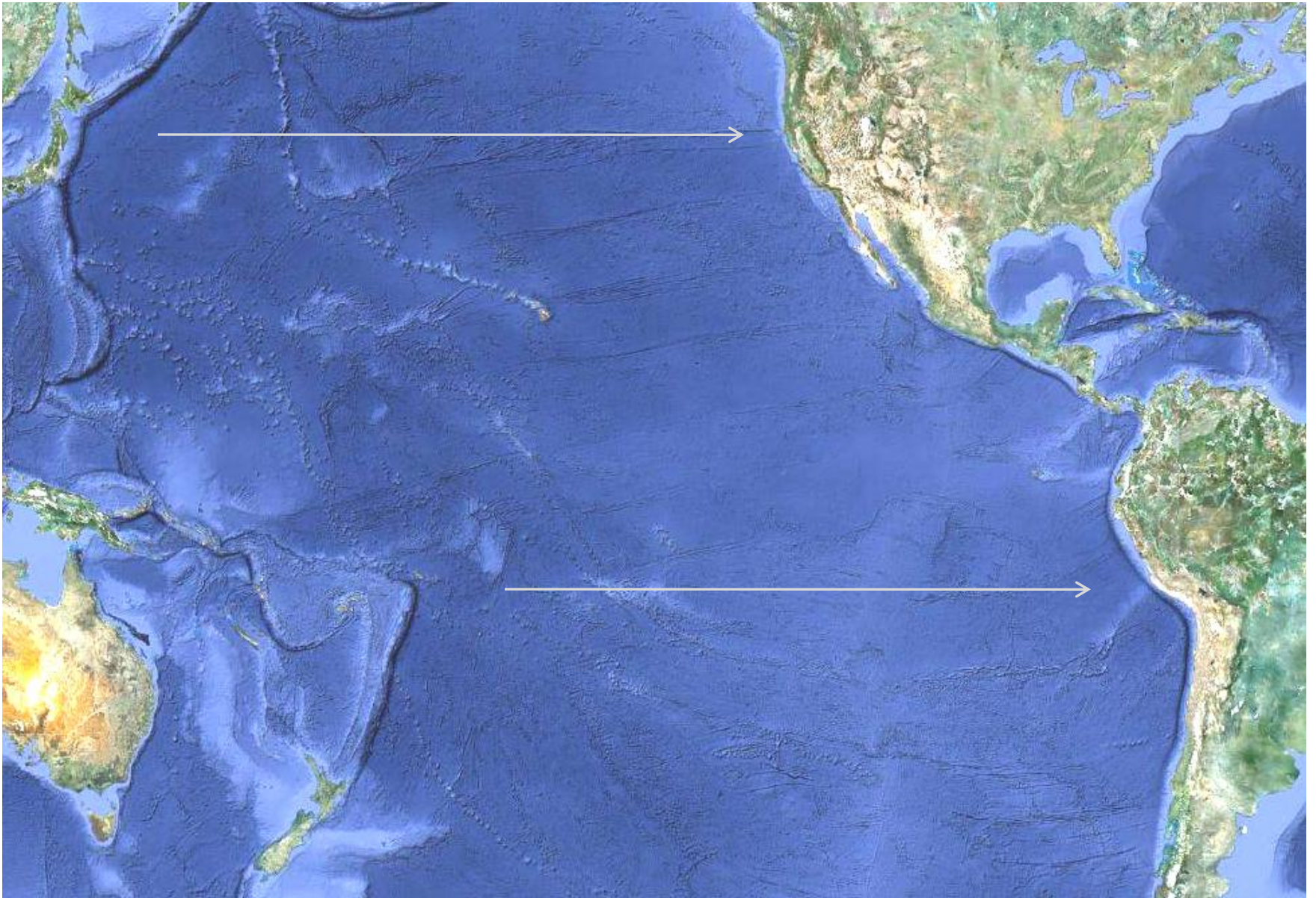
- Sever, propel formerly conjoined India & Africa; India acquires most kinetic energy; Madagascar shorn from Africa & India; India's impact creates Himalayan range; transit wakes preserved & observable on ocean floors
- Compress (forming Rockies and Andes), sever, release N & S America and drag them across Pacific basin
- Create valleys, gulfs, faults along western North America via drag mechanisms which unfurl compressed landscapes during transit
- Create the seasons: near event termination, India impacts Asia and the planet tilts; initial & final directions of impact trajectories deviate by 23°
- Create seismically active boundaries that remain so to the present
- Impart sufficient rotational energy to affect planet's "day"
- Create this irony: the Mid-Atlantic Ridge forms as a braking mechanism; ridge deformations created by buckling as continental transits halt
- Would contribute to the creation of the chaotic magnetosphere; induce Milankovitch cycles
- Was an extinction event
- Estimated 65 million years before present based on Yucatan asteroid age
- Consequences explain many other phenomena/observations.

Transit of India and Africa



Madagascar shorn from Africa and India; India's impact with Asia creates the Himalayan range.

N and S America shorn from locations across Pacific; original locations discernible in bathymetry



Note: arrows are of equal length, implying initiation and completion simultaneity.

Instilling Earth's Obliquity



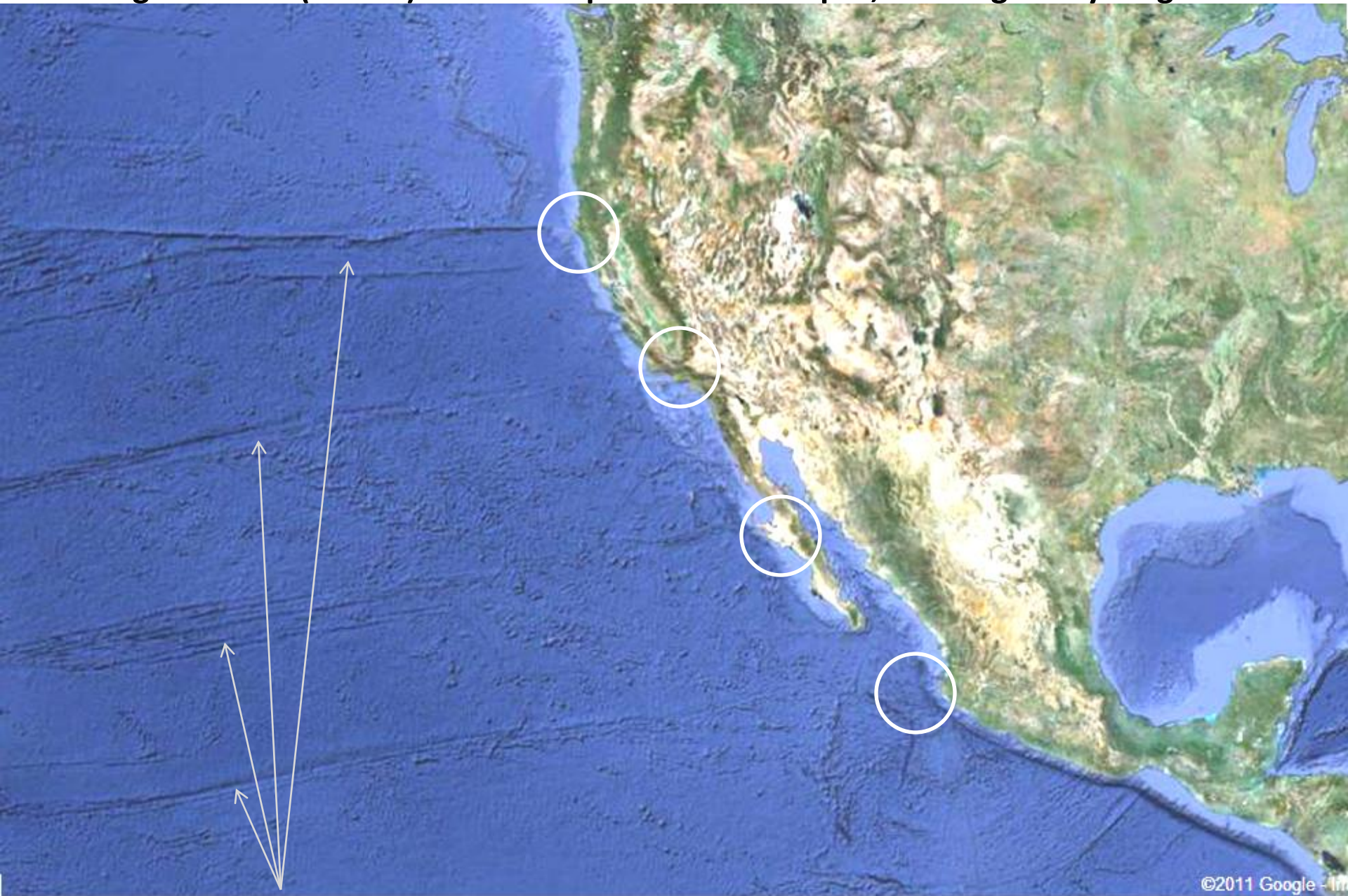
Initial direction of movement,
extended from scours in Pacific basin

Interior angle = 23°

Final direction, extended from
scours in Atlantic basin

Planet tilts northward as India collides with Asia; asteroid remnants grind eastward as event terminates.

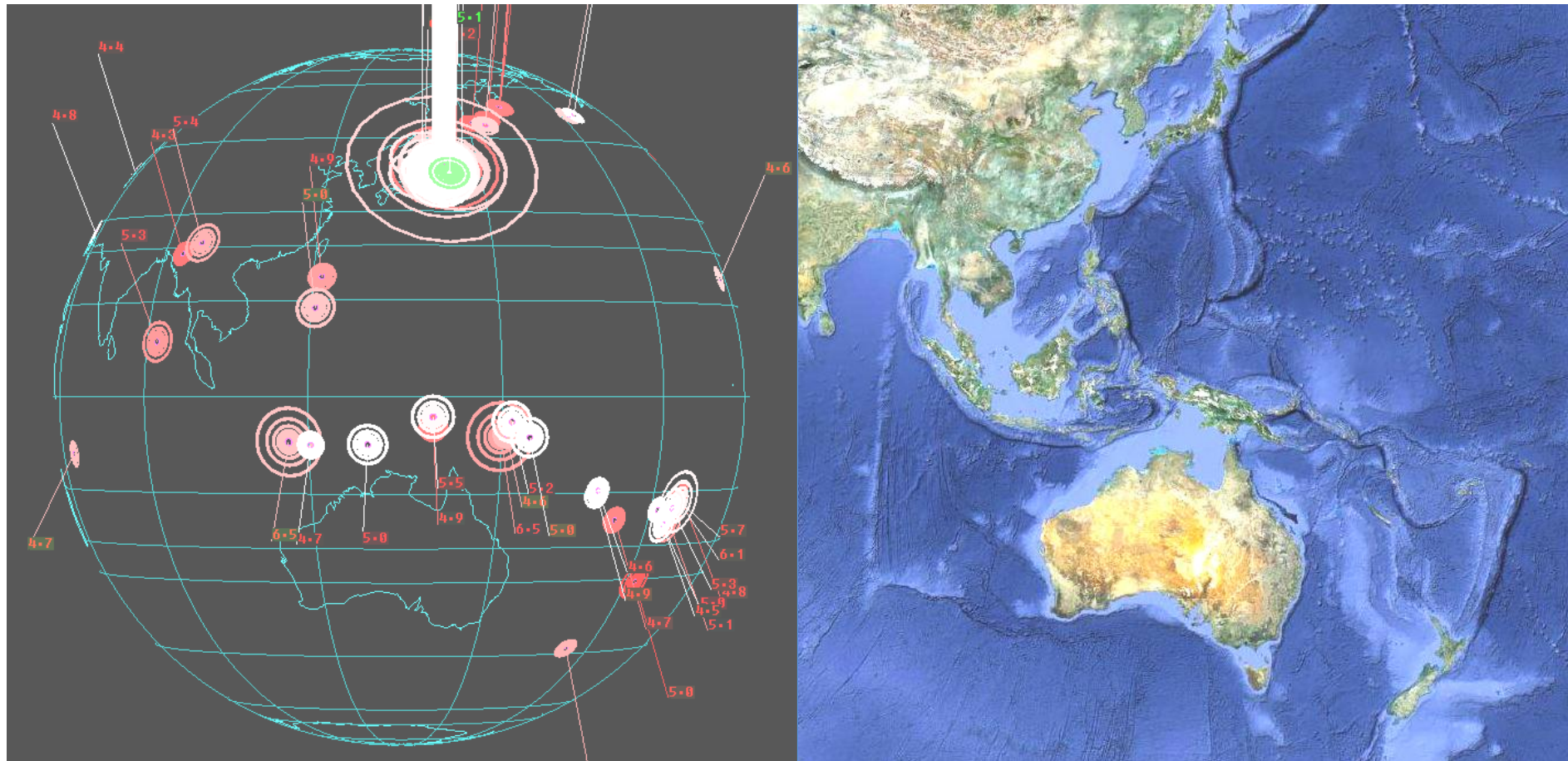
Drag locations (circled) unfurl compressed landscapes, creating valleys & gulfs



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Arrows identify “scours” created by drag mechanisms during eastward transit.

Separation boundaries remain seismically active



Is there a connection between “drag locations” and the most seismically active regions in East Asia?

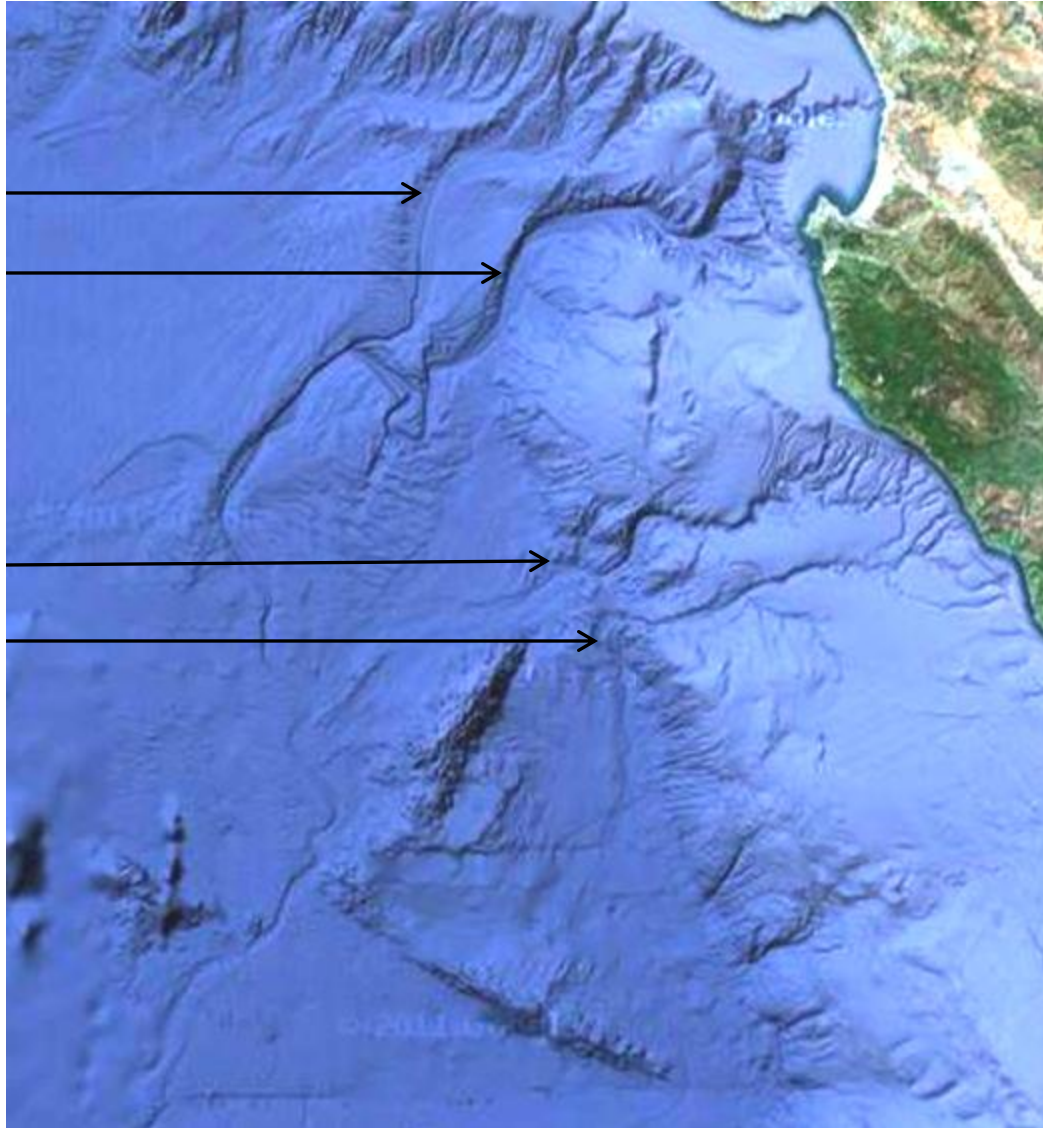
The comet impact

- Upon melting would preserve the river system that formed Monterey Canyon (meaning the comet added at least 3.6 km to ocean depths)
- Would create/enhance ocean currents (heat transfer mechanisms)
- Would increase atmospheric relative humidity, amplifying warm temperature extremes (green house effect); lead to extensive glaciations
- Would leave evidence in magnetic anomalies
- Additional mass is likely to have affected the “day,” & Earth and Moon orbits
- Likely to have been recent (relative to Earth’s age)
 - Temperature record implies approximately 460 +/- 15 kybp
 - Hearty (2002): major ice collapse occurred 350-550 kybp
 - Nascent erosion evident in some coastal glacial drainages; submerged during interglacial periods (so not eroding), yet exposed to erosion during glacial melting and runoff.

Additional 3.6 km ocean depth is equivalent to a sphere (water only) ~ 1350 km in diameter

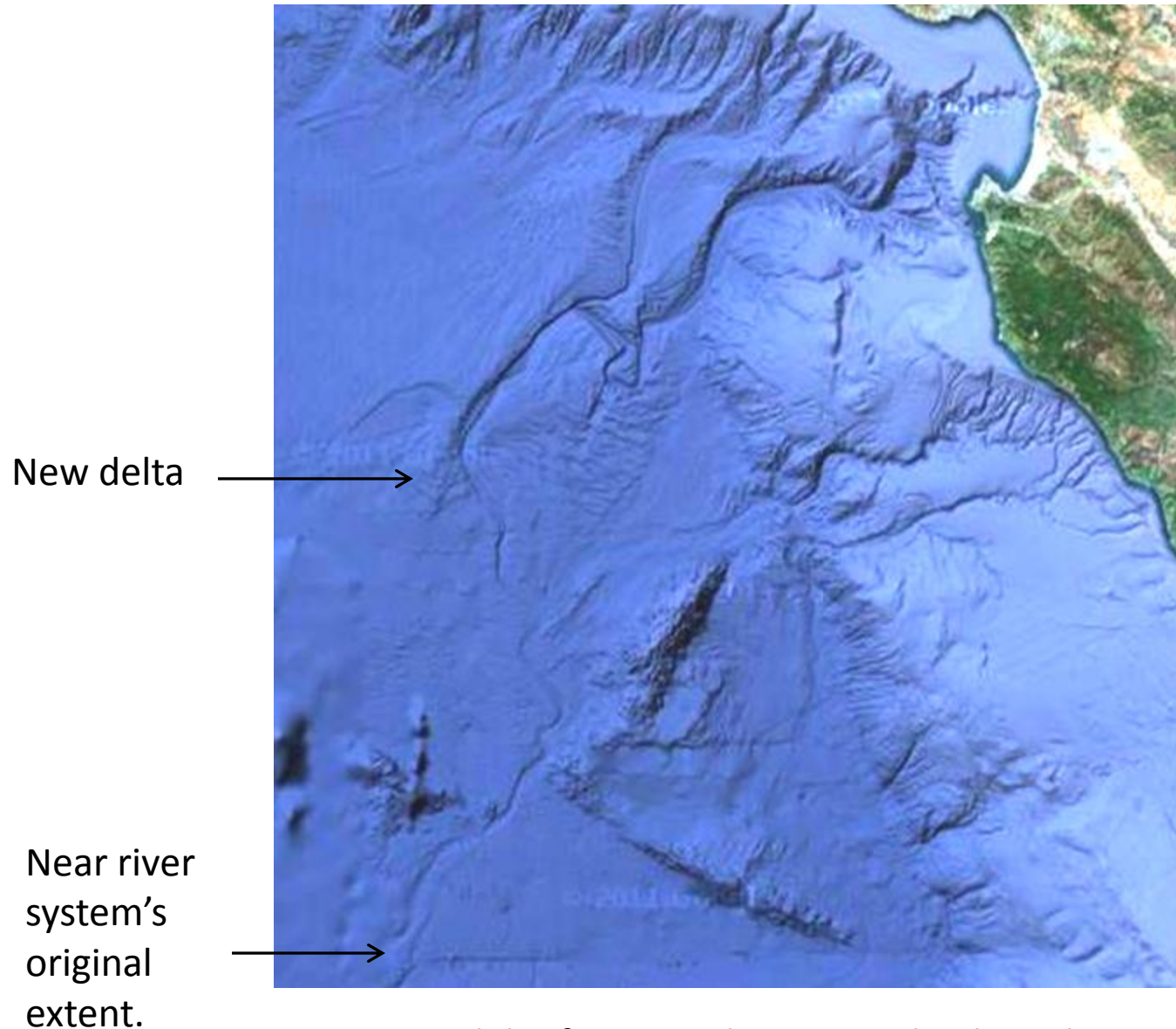
- Assuming composed of ice and other debris, the remnant/impact diameter would be larger; comet not necessarily spherical
- Impact remnant would have to reflect a less energetic and therefore less damaging impact than the asteroids'
- **The plausible impact location is in the Southern Ocean, southeast of what is now South Africa; diameter ~ 2000 km.**

Monterey Canyon is part of an ancient, now-submerged river system

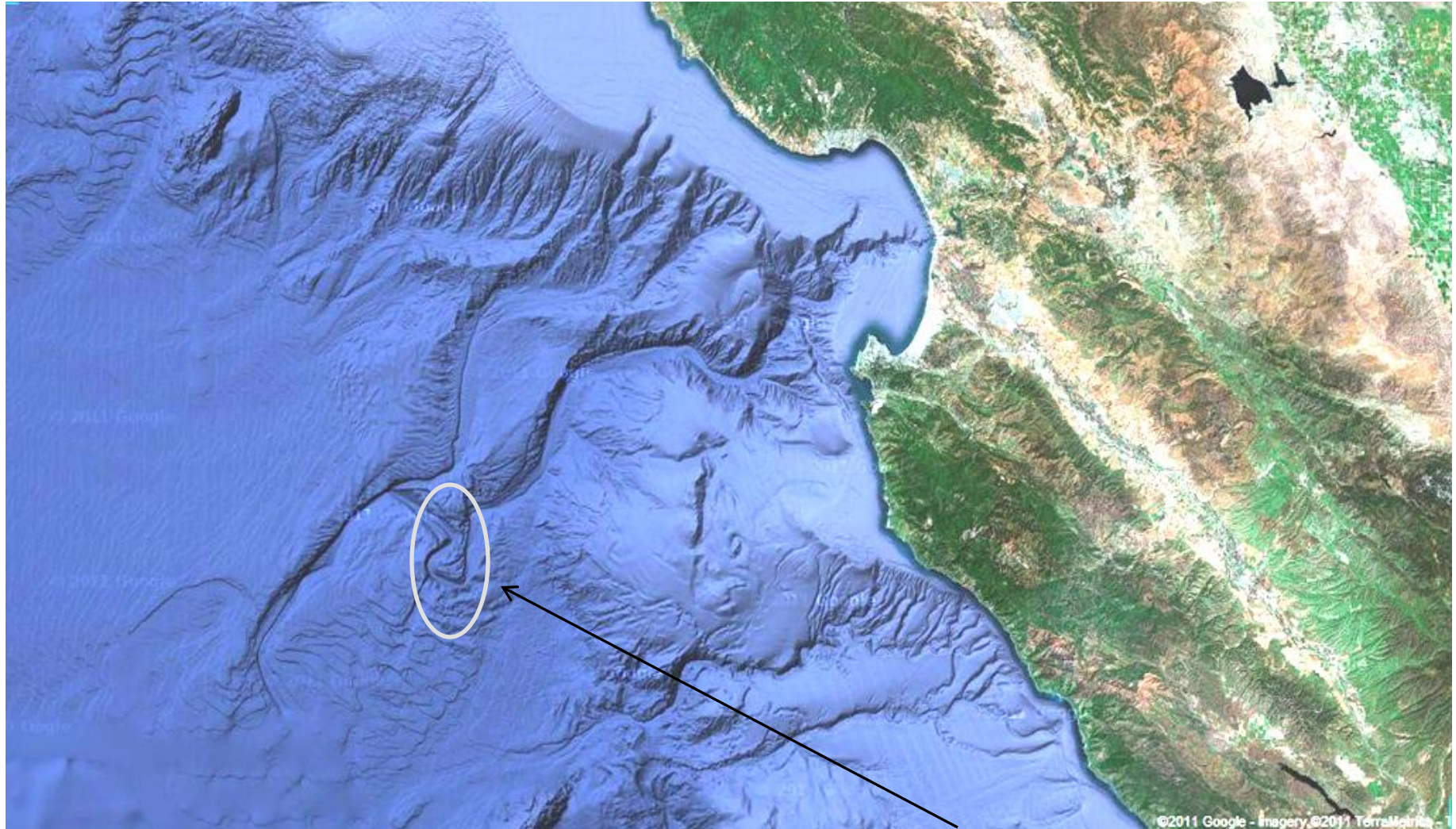


Arrows identify four river systems readily identifiable in the bathymetry. Before the comet impact, California (and all of NA west coast), at over 2 miles above sea level, would have been very damp (note the density of area's submerged river drainage systems).

Monterey Canyon is part of an ancient, now-submerged river system

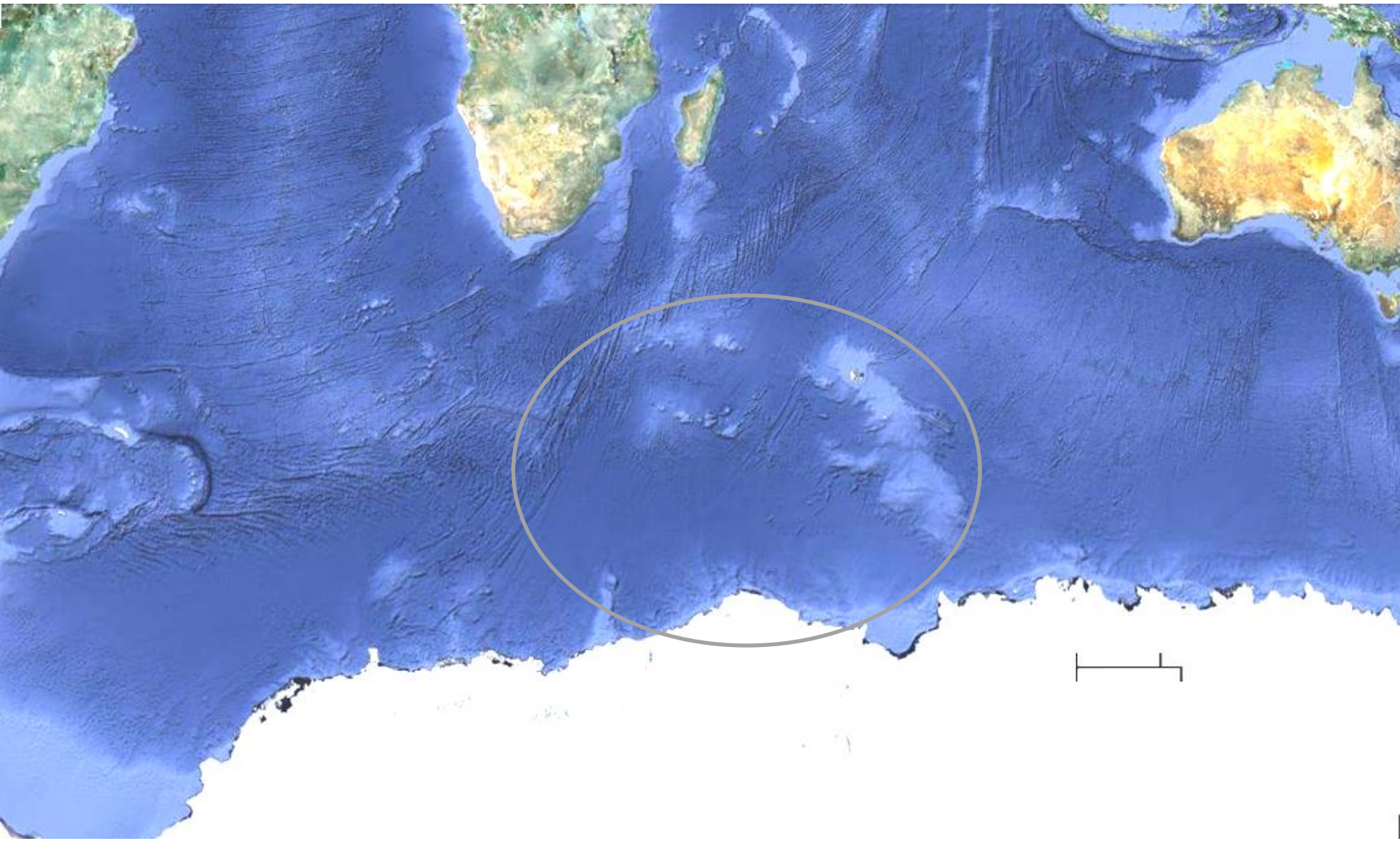


Monterey Canyon is part of an ancient, now-submerged river system

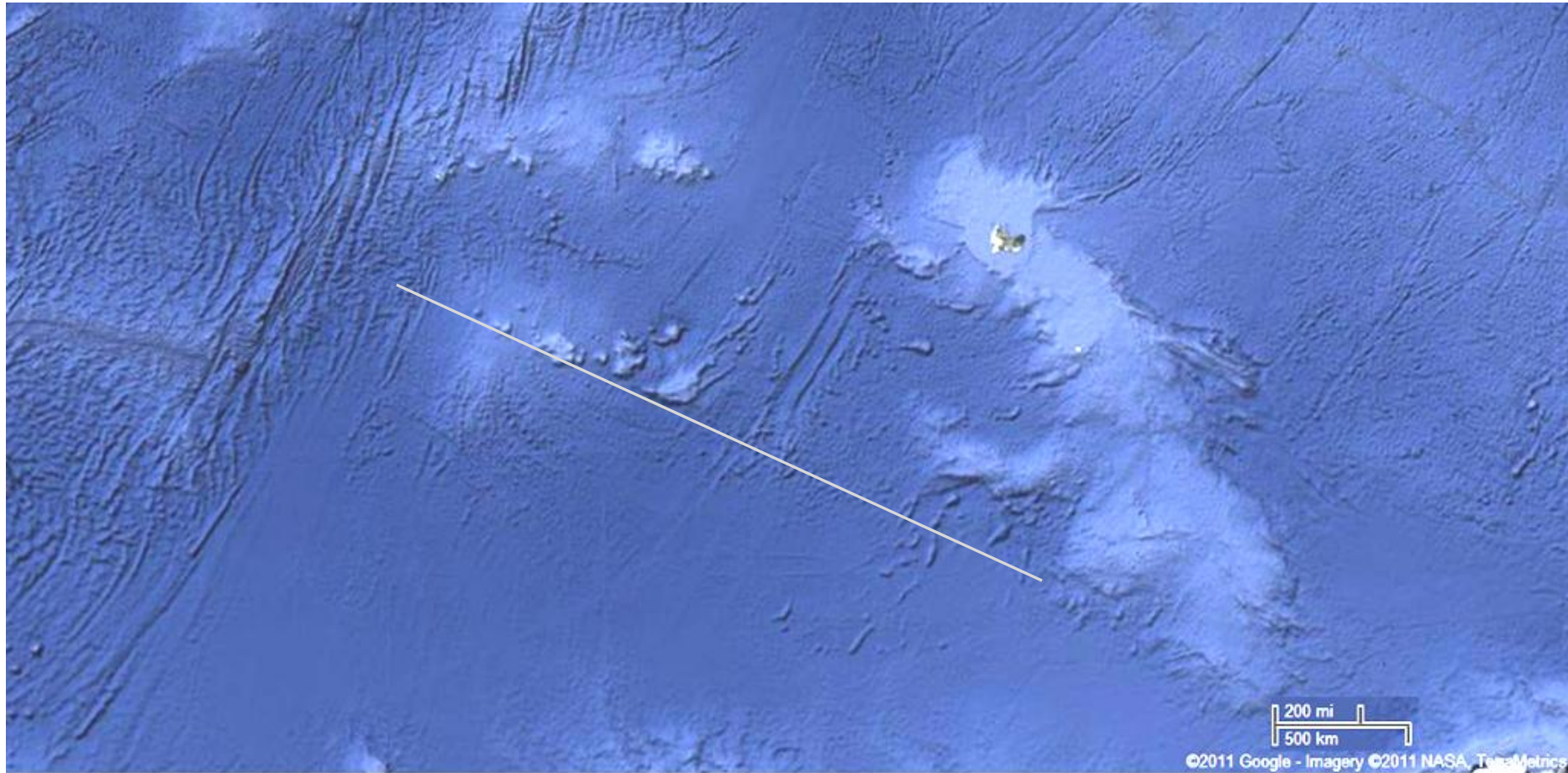


The well-preserved river system extends >50 miles off shore. This oxbow could not have been formed by submerged currents. A series of sediment deposit contours remain as evidence of the rising ocean levels south of (below) the oxbow.

Comet Impact Location

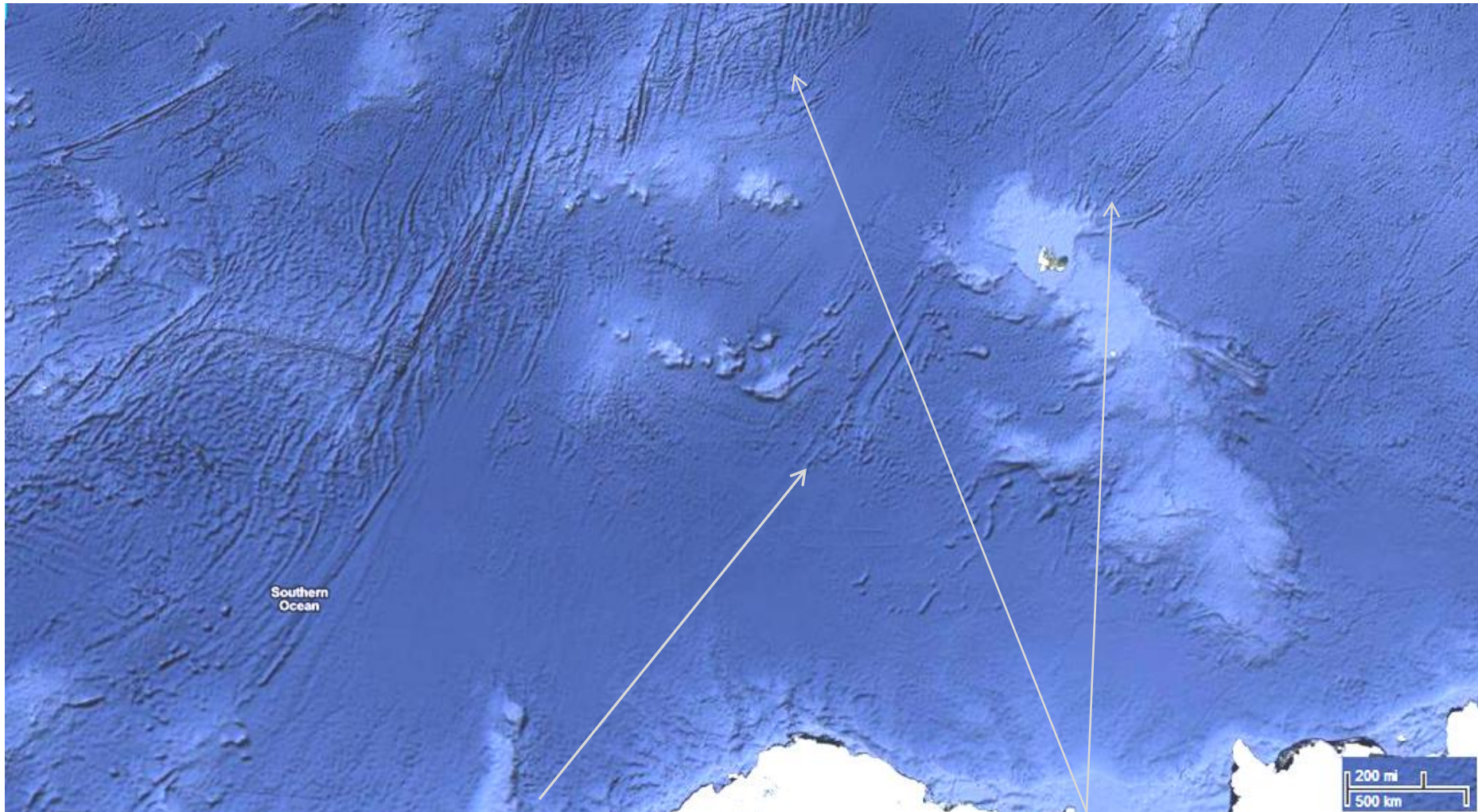


Comet Impact Size

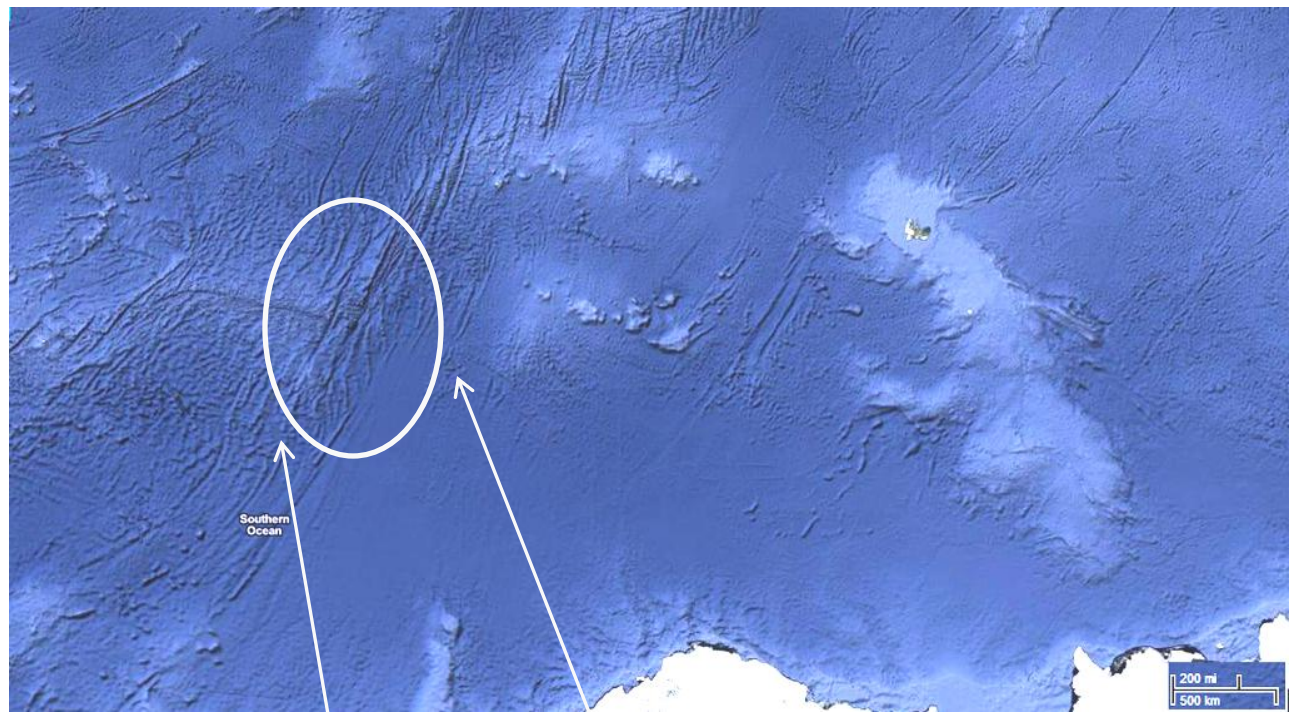


Comet diameter on order of 2000 km.

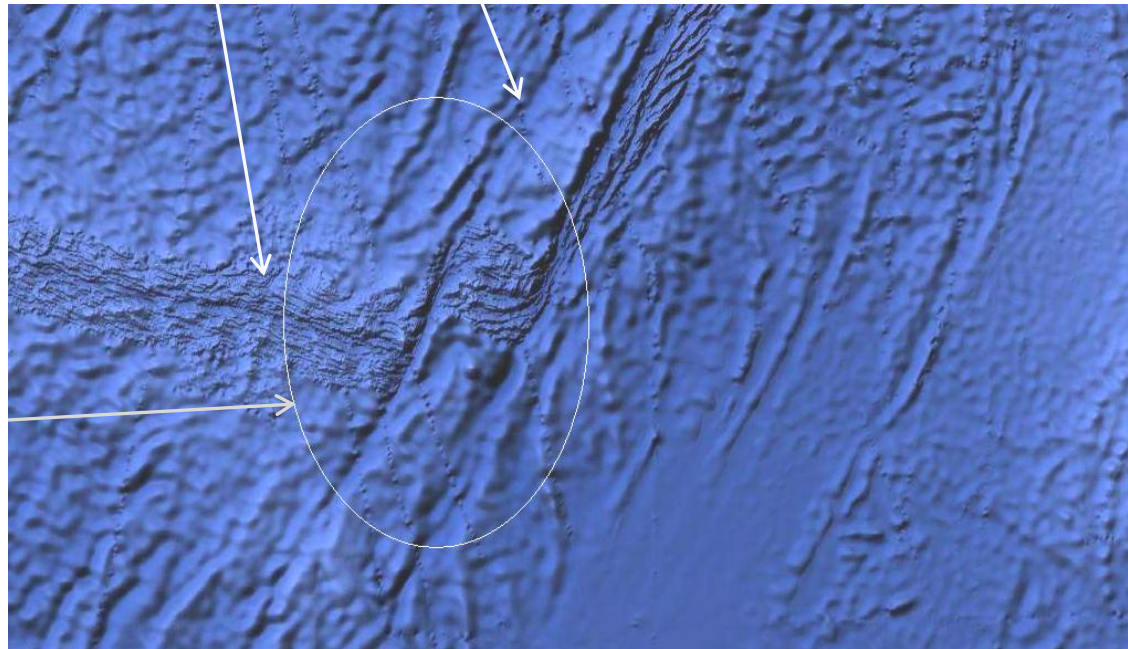
Comet Impact Analysis



Comet impact scrapes on ocean floor are not aligned with scours/wakes from Africa, India transits.

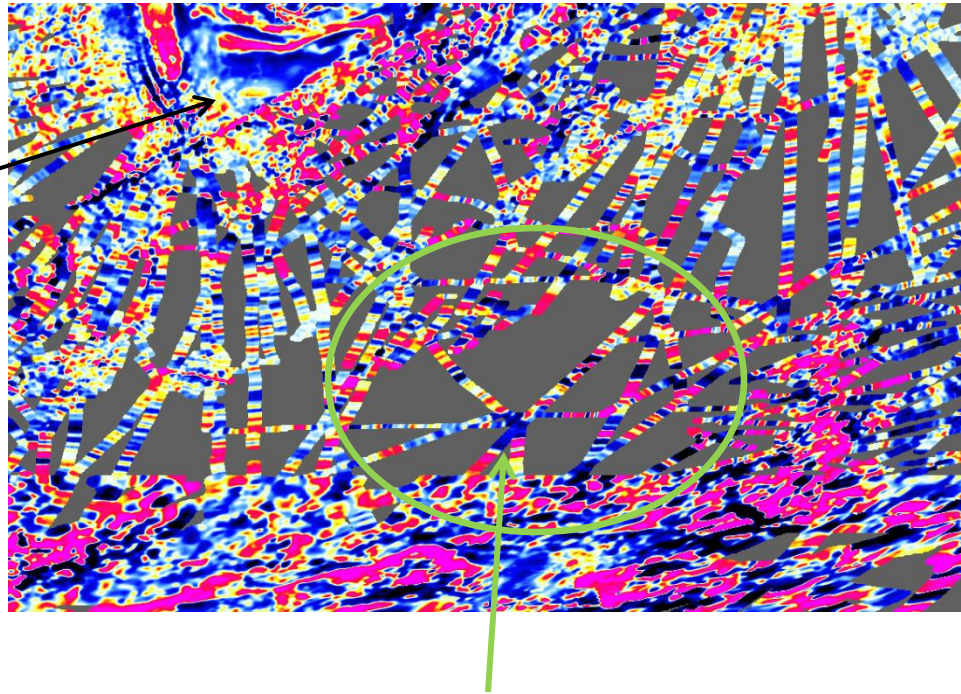


Impact causes
roughly 150 km
northeasterly
shift in local
topography.



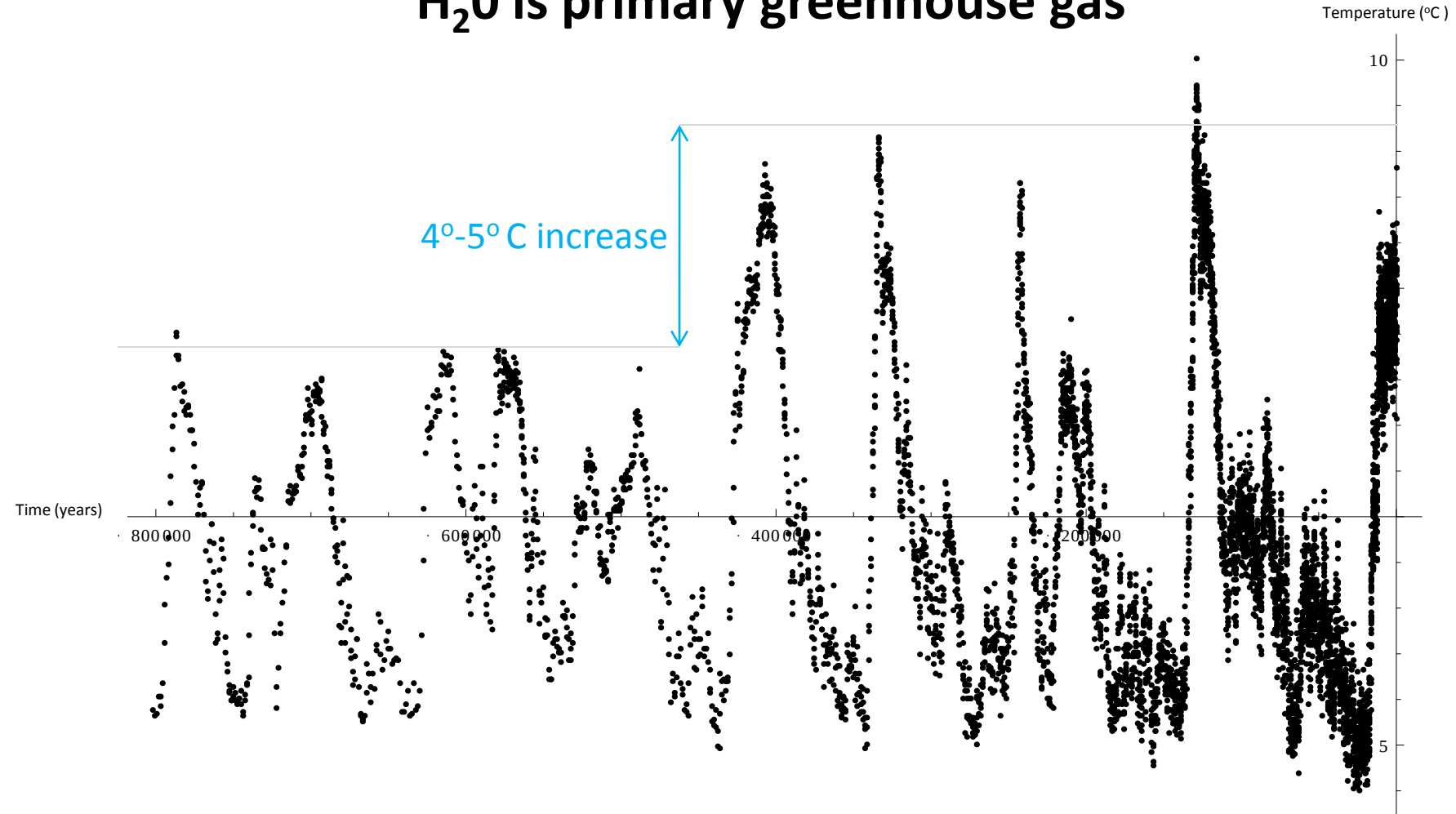
Magnetic anomaly corroborates comet impact site

South Africa



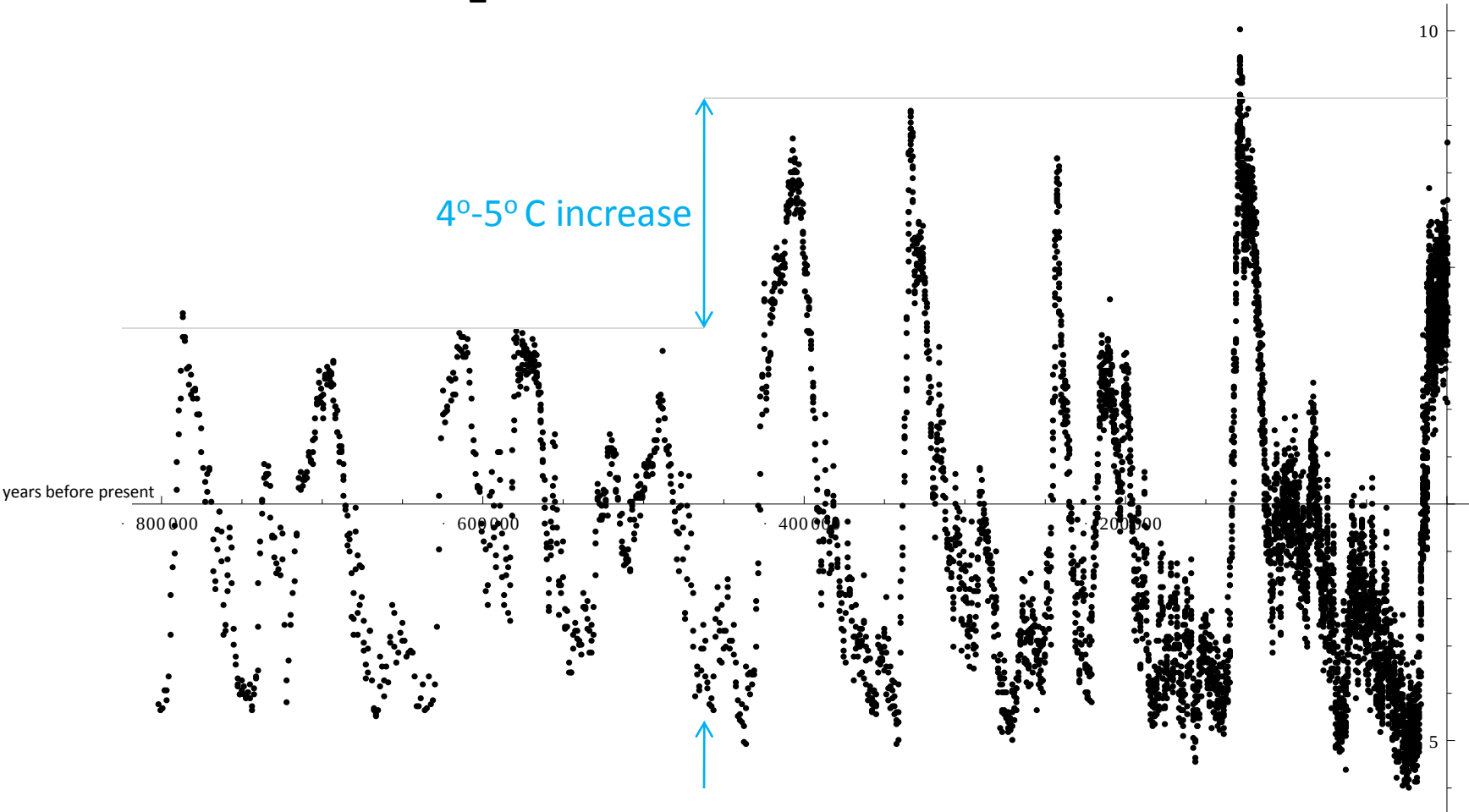
Compact impact center.

Additional water creates warmer inter-glacial temps; H_2O is primary greenhouse gas



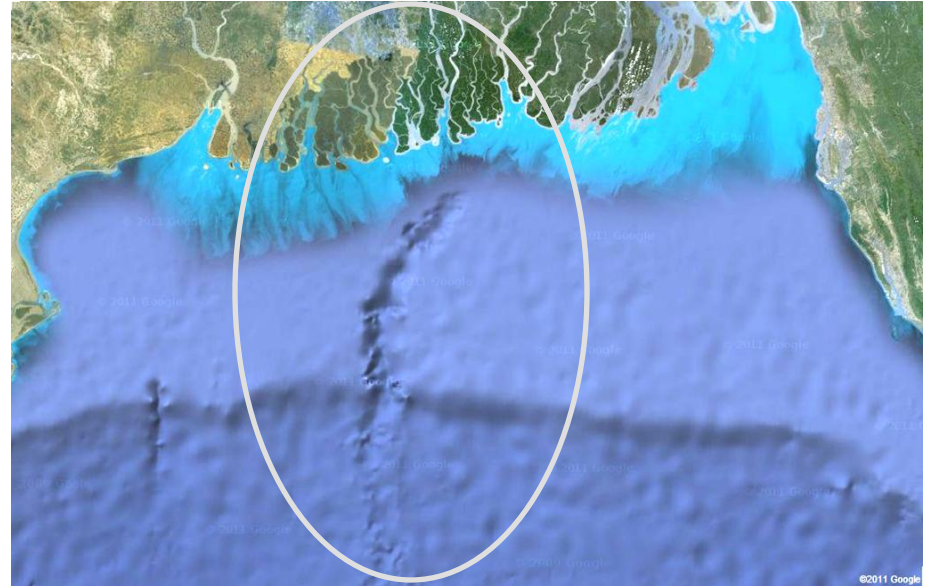
EDC3 temperature record (Jouzel, 2007); horizontal axis is time (years) with present on right, $t = 0$, and vertical axis is temperature (°C). Note the interglacial maximum temperatures increase approximately 4-5 °C beginning 400,000 years before present and that temperature minima decrease approximately 2 °C as well.

Additional water creates warmer inter-glacial temps; H_2O is primary greenhouse gas



Hearty (2002) “The Ka'ena Highstand of O'ahu, Hawai'i: Further Evidence of Antarctic Ice Collapse During the Middle Pleistocene”; estimated between 350-550kybp. The comet impact or ice collapse while melting is a plausible source of Hearty event. The comet strike is likely to have during the glacial period between 475,000 and 440,000 years before present; this refines the Hearty estimate.

Further evidence of recent water addition



Nascent drainages at glacial run-off locations SSE of Karachi, Pakistan, (left) and S of Khulna, Bangladesh (right). These drainages are water covered during interglacial periods (like the present) but exposed during glacial maxima when ocean levels decline $\sim 150\text{m}$.

There have been at most four post-impact glacial periods, meaning that the erosion is relatively new at these glacial runoff locations .

Conclusions, Event 1:

It is plausible that the *simultaneous impact* of two large, energetic objects

- Separated the continents, created major mountain ranges & ocean basins
- Created the seasons by instilling the planet's obliquity
- Event time measured in minutes (rather than millennia)
- Length of “day” likely to have been affected
- Created boundaries that remain seismically active, created chaotic magnetosphere, Milankovitch cycles
- Likely a mass extinction event.

Conclusions, Event 2:

It is plausible that a comet impacted the Southern Ocean

- Added at least 3.6 km depth to oceans
- Likely to have occurred ~ 460,000 years before present
- Additional water amplifies warming during interglacial periods.

Some implications

- The plausible explanations necessitate reassessment of *many* works. Continental drift would be refuted, and timelines based thereon would be erroneous.
- Findings have implications to many other fields such as anthropology, seismology, paleoceanography, meteorology, paleontology, volcanology, etc.
- Prior to the simultaneous asteroid impacts,
 - the Earth's axis would have been perpendicular to the plane of the ecliptic, and a "day" was likely much different. [Perhaps Earth & Moon formed facing one another, meaning an Earth day was as is a Moon day?]
 - the Earth could have supported tropical climates closer to its poles.
- Prior to the comet impact, ocean shorelines were beyond the horizon and abysses at continental edges were formidable, having evolutionary and anthropologic implications. For instance, human oral tradition/history likely extends at least 460,000 years before present.