

This document is an online supplement to:

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(2016, *in press*) Does it matter if the consensus on anthropogenic global warming is 97%
or 99.99%? *Bulletin of Science, Technology and Society*.

It comprises: a) a description of the method used to rate 311 abstracts from peer-reviewed geological journals in 2015 for their degree of endorsement of plate tectonics; b) the titles of the 95 abstracts judged to be implicit endorsements of plate tectonics, along with the keywords used to justify those ratings.

Method for determining plate tectonic ratings

All of abstracts for the peer-reviewed papers published in the year 2015 in *Geology* (12 volumes, 265 abstracts) and the *Journal of the Geological Society* (6 volumes, 66 abstracts) were read and rated for their degree of endorsement or rejection of plate tectonics. None of the abstracts contained explicit statements affirming the theory, nor were any abstracts found that cast doubt on the theory or its essential elements, such as plate movement, sea-floor spreading or subduction. The abstracts fell into only two categories: implicit endorsement or no-position.

An abstract was judged to contain an implicit endorsement of plate tectonics when it uncritically referred to essential elements of the theory or to geological processes that could not reasonably be explained without resort to the theory.

The aim of the study was exploratory only. To determine the consensus on plate tectonics definitively in the modern geological literature would require a much larger sample of many more journals. The two journals selected are both leading solid-Earth science journals that publish research in all aspects of geology. In *Geology*, out of 265 abstracts, 65 implicitly endorsed plate tectonics (24.5%). In the *Journal of the Geological Society*, out of 66 articles, 30 (45.5%) were judged to have endorsed plate tectonics implicitly. The variance in frequency of implicit endorsements between the two journals perhaps reflects a different editorial focus.

The ratings were done by AS and KR. They conferred, discussing rating criteria and revising their initial ratings. No time or date stamps were recorded. The names and affiliations of the authors of the abstracts were visible to the raters. Howard Lee also commented on the ratings. The contributors to this process were not neutral with respect to their own assessment of the reality of the theory of plate tectonics.

Listed below are the titles of the papers (within quotation marks) that were judged to be “implicit endorsements”. Following the paper titles, the key words and phrases from the abstracts used to justify the rating are listed in italics.

Ratings

Geology, January 2015 (23 abstracts, 5 endorsements).

“Rifting and subsidence following lithospheric removal in continental back arcs”

subduction, slab

“Spatial and temporal evolution of hyperextended rift systems: Implication for the nature, kinematics, and timing of the Iberian European plate boundary”

seafloor spreading, plate boundary

“Mesoproterozoic and Paleoproterozoic subcontinental lithospheric mantle domains beneath southern Patagonia: Isotopic evidence for its connection to Africa and Antarctica”

connection to Africa and Antarctica, reconstructed Rodinia supercontinent

“Fault geometry and permeability contrast control vent temperatures at the Logatchev 1 hydrothermal field, Mid-Atlantic Ridge”

slow-spreading Mid-Atlantic Ridge

“Near seafloor magnetics reveal tectonic rotation and deep structure at the TAG (TransAtlantic Geotraverse) hydrothermal site (Mid-Atlantic Ridge, 26°N)”

Mid-Atlantic Ridge, detachment tectonics

Geology, February 2015 (23 abstracts, 4 endorsements).

“Slip reorientation in oblique rifts”

plate kinematics

“Pelagic smectite as an important factor in tsunamigenic slip along the Japan Trench”

active plate boundary fault, Japan Trench plate boundary

“Tibetan chromitites: Excavating the slab graveyard”

supra-subduction zone environment, rollback of the Indian slab

“Age and provenance of Grenville supergroup rocks, TransAdirondack Basin,
constrained by detrital zircons”

backarc basin ... that opened ... and closed, Laurentia

Geology, March 2015 (19 abstracts, 3 endorsements).

“Why cold slabs stagnate in the transition zone”

slab

“A genetic linkage between subduction-and collision-related porphyry Cu deposits in
continental collision zones”

Collision-related, subduction-modified arc lithosphere, underplating

“Ancient depletion and mantle heterogeneity: Revisiting the Permian Jurassic paradox of Alpine peridotites”

Jurassic Ligurian Tethys, (ultra)slow spreading environments, continental breakup and rifting

Geology, April 2015 (23 abstracts, 10 endorsements).

“Melts of sediments in the mantle wedge of the Oman ophiolite”

subducted plate, subduction zones

“Episodic photic zone euxinia in the northeastern Panthalassic Ocean during the end-Triassic extinction”

Panthalassic Ocean

“The generation of continental flood basalts by decompression melting of internally heated mantle”

plate boundary forces, continental fragmentation

Holocene turbidites record earthquake supercycles at a slow-rate plate boundary”

slow-rate plate boundary, Africa-Eurasia plate boundary

“How the closure of paleo-Tethys and Tethys oceans controlled the early breakup of Pangaea”

Supercontinent Pangaea, Panthalassian Ocean, paleo-Tethis and Tethys oceans, subduction, early opening of the central Atlantic and proto-Caribbean oceans, opening Atlantic and closing Tethys realm, transform fault Pangaea breakup, slab-sinking-based forces, subduction zones

“Strike-slip faults mediate the rise of crustal derived fluids and mud volcanism in the deep sea”

accretionary wedge, transcurrent plate boundary, transform-type plate boundaries

“Early-to mid-Silurian extrusion wedge tectonics in the central Scandinavian Caledonides”

large-scale extrusion wedge

“Synorogenic extension localized by upper crustal thickening: An example from the Late Cretaceous Nevadaplano”

thrust belt dynamics

“Continental uplift through crustal hydration”

subduction-derived fluids

“Pervasive deformation of an oceanic plate and relationship to large >Mw 8 intraplate earthquakes: The northern Wharton Basin, Indian Ocean”

Indian Ocean diffuse plate boundary zone, Ninety-east Ridge , subduction zone, intraplate earthquakes

Geology, May 2015 (22 abstracts, 6 endorsements).

“Abiotic methane from ultraslow-spreading ridges can charge Arctic gas hydrates”

ultraslow-spreading ocean basins, a mid-ocean ridge transform fault, the Molloy transform fault

“Rapid exhumation in the Western Alps driven by slab detachment and glacial erosion”

European slab under the Western Alps

“Volatile budget of Tenerife phonolites inferred from textural zonation of S-rich hauyne”

subduction zone

“Preserved near ultrahigh-pressure melt from continental crust subducted to mantle depths”

subduction, subducted crustal lithologies, subduction-collision orogens

“Simultaneous mountain building in the Taiwan orogenic belt”

arc-continent collision

“Revision of Paleogene plate motions in the Pacific and implications for the Hawaiian-Emperor bend”

relative motion between the Pacific plate and its neighboring plates, absolute and relative plate motions, Farallon/Vancouver-Pacific-Antarctic seafloor spreading, Pacific-Antarctic spreading

Geology, June 2015 (23 abstracts, 5 endorsements).

“Forearc hyperextension dismembered the south Tibetan ophiolites”

suprasubduction zone, modern slow- and ultraslow-spreading ridges

“Old continental zircons from a young oceanic arc, eastern Taiwan: Implications for Luzon subduction initiation and Asian accretionary orogeny”

Accretionary orogeny that involves terrain accretion, continental fragment, opening of the South China Sea, subduction

“Cyclical processes in the North American Cordilleran orogenic system”

accretionary wedge to the retroarc foreland, flat-slab subduction

“One or two oroclines in the Variscan orogen of Iberia? Implications for Pangea amalgamation”

Gondwana-Laurussia collision, clockwise rotation of Gondwana

“Mantle heterogeneity controls on small-volume basaltic volcanism”

intraplate settings

Geology, July 2015 (23 abstracts, 5 endorsements).

“Foreland basin stratigraphic control on thrust belt evolution”

enlargement of the orogenic wedge through frontal accretion

“The Miocene Galápagos ash layer record of Integrated Ocean Drilling Program Legs 334 and 344: Ocean-island explosive volcanism during plume-ridge interaction”

spreading ridge

“Intraplate seismicity in northern Central Europe is induced by the last glaciation”

Intraplate

“Continental rifting and sediment infill in the northwestern Gulf of Mexico”

opening of the Gulf of Mexico, continental rifting, continental breakup

“Imaging high-pressure rock exhumation in eastern Taiwan”

active arc-continent collision

Geology, August 2015 (23 abstracts, 6 endorsements).

“USArray shear wave splitting shows seismic anisotropy from both lithosphere and asthenosphere”

absolute plate motion

“Upper plate reverse fault reactivation and the unclamping of the megathrust during the 2014 northern Chile earthquake sequence”

subduction across a plate boundary, curved subduction margin, upper plate

“Accommodation space, relative sea level, and the archiving of paleo-earthquakes along subduction zones”

subduction zones

“Tracking the Tristan-Gough mantle plume using discrete chains of intraplate volcanic centers buried in the Walvis Ridge”

intraplate, mid-ocean ridge

“Timing of the Cenozoic “Great Hydration” event beneath the Colorado Plateau: Th-Pb dating of monazite in Navajo volcanic field metamorphic eclogite xenoliths”

subducted Farallon plate

“Crustal structure of northwest Namibia: Evidence for plume-rift-continent interaction”

separation of the South American and African continents, Gondwana breakup

Geology, September 2015 (23 abstracts, 7 endorsements).

“Mesoproterozoic Tasmania: Witness to the East Antarctica–Laurentia connection within Nuna”

supercontinent Nuna, Laurentia, Nuna breakup

“Temporal evolution of mantle wedge oxygen fugacity during subduction initiation”

mid-oceanic ridge basalts (MORBs, slab-derived fluids, subduction, subduction zone

“The lithospheric structure of Pangea”

Pangea, poles of rotation, active margin, accretion

“Intermediate-depth earthquake generation and shear zone formation caused by grain size reduction and shear heating”

subduction initiation

“Porphyry Au-Cu mineralization controlled by reactivation of an arc-transverse volcanosedimentary subbasin”

Macquarie Arc was accreted to the Gondwana margin

“First seismic evidence for continental subduction beneath the Western Alps”

continental subduction, lower crust underthrusts the Adriatic mantle, convergent continental margins

“Modes and rates of horizontal deformation from rotated river basins: Application to the Dead Sea fault system in Lebanon”

Arabia-Sinai relative plate motion, plate motion, plate boundary

Geology, October 2015 (23 abstracts, 6 endorsements).

“Direct stratigraphic dating of India-Asia collision onset at the Selandian (middle Paleocene, 59 ± 1 Ma)”

collision of India with Asia

“Mantle strength of the San Andreas fault system and the role of mantle-crust feedbacks”

lithospheric-scale strike-slip fault zones

“Evolution of recycled crust within the mantle: Constraints from the garnet pyroxenites of the External Ligurian ophiolites (northern Apennines, Italy)”

recycled crust within the mantle, mid-oceanic ridge basalt-type gabbroic sequence

“Focused fluid transfer through the mantle above subduction zones”

subduction zones, subducted oceanic crust, slab fluids

“Tracking changes in crustal thickness during orogenic evolution with Sr/Y: An example from the North American Cordillera”

convergent orogenic systems

“South Atlantic opening: A plume-induced breakup?”

Atlantic opening, disintegrate continental lithosphere, continental breakup

Geology, November 2015 (23 abstracts, 5 endorsements).

“To see, or not to see? Rifted margin extension”

rifted margin

“Age and geochemistry of magmatism on the oceanic Wallaby Plateau and implications for the opening of the Indian Ocean”

passive continental margins, mid-ocean ridge spreading, breakup of Greater India and Australia, volcanic passive margin

“The ocean-continent transition in the mid-Norwegian margin: Insight from seismic data and an onshore Caledonian field analogue”

passive margins

“Onset of aridification by 34 Ma across the Eocene-Oligocene transition in Central Asia”

retreat of the Neotethys Ocean.

“Slab flattening, magmatism, and surface uplift in the Cordillera Occidental (northern Peru)”

subduction, slab, ridge subduction

Geology, December 2015 (17 abstracts, 3 endorsements).

“Paleomagnetic evidence for ~4000 km of crustal shortening across the 1 Ga Grenville orogen of North America”

Laurentia collision with Amazonia

“A sub-crustal piercing point for North Atlantic reconstructions and tectonic implications”

Plate tectonic reconstructions, Caledonian collision event, separation of the Jan Mayen microcontinent

“Seismic anisotropy beneath the Juan de Fuca plate system: Evidence for heterogeneous mantle”

Juan de Fuca plate, plate motion, subduction zone, plate boundaries, transform fault, Gorda plate, subducting slab, plate fragmentation

Journal of the Geological Society, January 2015 (12 abstracts, 5 endorsements).

“Rift and supradetachment basins during extension: insight from the Tyrrhenian rift”

subducting plate

“Metamorphic core complexes: windows into the mechanics and rheology of the crust”

plate convergence

“Detrital zircon and tectonostratigraphy of the Parautochthon under the Morais Complex (NE Portugal): implications for the Variscan accretionary history of the Iberian Massif”

northern Gondwana passive margin during the opening of the Rheic Ocean

“Chronology, petrogenesis and heat sources for successive Carboniferous magmatic events in the Southern–Central Variscan Vosges Mts (NE France)”

subducted crust

“Archaean granulite-facies paragneisses from central Swaziland: inferences on Palaeoarchaeon crustal reworking and a complex metamorphic history”

modern subduction–collision tectonic settings

Journal of the Geological Society, March 2015 (12 abstracts, 5 endorsements).

“The Fram Slide off Svalbard: a submarine landslide on a low-sedimentation-rate glacial continental margin”

NW European continental margin, tectonic faulting

“0.3 byr of drainage stability along the Palaeozoic palaeo-Pacific Gondwana margin; a detrital zircon study”

tectonic activity related to subduction and terrane accretion

“Silurian flysch successions of Ellesmere Island, Arctic Canada, and their significance to northern Caledonian palaeogeography and tectonics”

active plate margin

“Rifting and mafic magmatism in the Hebridean Basins”

extensional tectonism driven by plate boundary forces, plate reorganizations

“Tectono-sedimentary evolution of the Permian– Triassic extension event in the Zagros basin (Iran): results from analogue modelling”

passive continental margin, formation of the Neo-Tethys

Journal of the Geological Society, May 2015 (11 abstracts, 3 endorsements).

“U–Pb zircon constraints on obduction initiation of the Unst Ophiolite: an oceanic core complex in the Scottish Caledonides?”

supra-subduction zone, Iapetus Ocean, obduction, Laurentian margin

“Significance of detrital zircons in Siluro- Devonian rocks from Iberia”

Variscan convergence between Laurussia and Gondwana

“Subaerial speleothems and deep karst in central Sweden linked to Hirnantian glaciations

Gondwana

Journal of the Geological Society, July 2015 (8 abstracts, 4 endorsements).

“Magmatism, mantle evolution and geodynamics at the converging plate margins of Italy”

converging plate margins, subduction

“Zircon provenance of SW Caledonian phyllites reveals a distant Timanian sediment source”

Baltica, passive margin across the whole palaeocontinent

“Importance of crustal relamination in origin of the orogenic mantle peridotite–high-pressure granulite association: example from the Náměšť Granulite Massif (Bohemian Massif, Czech Republic)”

collisional orogenic systems, continental subduction

“Metamorphic and age constraints on crustal reworking in the western H.U. Sverdrupfjella: implications for the evolution of western Dronning Maud Land, Antarctica”

tectonic accretion, Gondwana break-up

Journal of the Geological Society, September 2015 (11 abstracts, 7 endorsements).

“⁴⁰Ar/³⁹Ar phlogopite geochronology of lamprophyre dykes in Cornwall, UK: new age constraints on Early Permian post-collisional magmatism in the Rhenohercynian Zone, SW England”

closure of the Rheic Ocean and the formation of Pangaea

“Structure and sedimentology of George VI Ice Shelf, Antarctic Peninsula: implications for icesheet dynamics and landform development “

tectonic rift

“Mesozoic and Cenozoic deformations in the Raggyorcaka area, Tibet: implications for the tectonic evolution of the North Qiangtang terrane”

collisional tectonics of the Tethys Ocean, intraplate structures

“Post-collisional high-K calc-alkaline volcanism in Tengchong volcanic field, SE Tibet: constraints on Indian eastward subduction and slab detachment”

underthrusting of the Indian continental lithosphere following the India–Asia collision, slab detachment of the eastward subducted Indian continental lithosphere, convergence angle between India and Asia

“Sedimentation in remnant ocean basin off SW Taiwan with implication for closing northeastern South China Sea”

oblique arc–continent collision, subduction

“Late Cenozoic intraplate volcanism in Changbai volcanic field, on the border of China and North Korea: insights into deep subduction of the Pacific slab and intraplate volcanism”

subduction, intraplate volcanism, convergence rates between the Eurasian and Pacific plates

“Miocene tectonic evolution of the basins and fault systems, SE Korea: dextral, simple shear during the East Sea (Sea of Japan) opening”

East Sea (Sea of Japan) opening, back-arc opening, collision of the Philippine Sea Plate with the Japanese Islands

Journal of the Geological Society, November 2015 (12 abstracts, 6 endorsements).

“Assessing the impact of orogenic inheritance on the architecture, timing and magmatic budget of the North Atlantic rift system: a mapping approach”

North Atlantic rift system, break-up, rift system reactivates sutures

“Rift magmatism on the Eurasia basin margin: U–Pb baddeleyite ages of alkaline dyke swarms in North Greenland”

The opening of the Arctic Ocean, continental rifting, break-up along the Gakkel Ridge and formation of the Eurasia Basin

“Pre-break-up palaeostress state along the East Greenland margin”

intraplate deformation, NE Atlantic spreading, rotation pole, plate margin

“No Exploits back-arc basin in the Iapetus suture zone of Ireland”

Iapetus Ocean, peri-Gondwanan, back-arc basin opening, terrane, suture

“Nature and age of pre-Variscan eclogite protoliths from the Low- to Medium-Grade Metamorphic Complex of north–central Sardinia (Italy) and comparisons with coeval Sardinian eclogites in the northern Gondwana context”

Gondwana, back-arc basins, opening of the Rheic Ocean

“Autochthonous v. accreted terrane development of continental margins: a revised in situ tectonic history of the Antarctic Peninsula”

allochthonous terrane accretion model, continental margin extension, palaeo-subduction zone, Gondwana

References

The abstracts were accessed online from the following, open-access websites:

Geology.

Retrieved from: <http://geology.gsapubs.org/content/by/year/2015>

Journal of the Geological Society.

Retrieved from: <http://jgs.lyellcollection.org/content/by/year/2015>