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Geoscience Bulletin Board – 16 September 2019 – compiled by Elaine J. Hanford

Seismology of 9/11 of aircraft impacts and subsequent collapse of twin towers at World Trade Center

- <https://www.forbes.com/sites/davidbressan/2019/09/11/the-seismology-of-911/#15a14ee53a30>

Steamboat geyser in Yellowstone sets new eruption record

- <https://earthsky.org/earth/steamboat-geyser-yellowstone-breaks-eruption-record>

Blanco fault zone M6.3 EQ triggered “unwarranted” Cascadia concerns

- <https://blogs.scientificamerican.com/rosetta-stones/why-the-blanco-fault-zone-earthquake-is-fun-not-fearsome/>

Wrangell volcano to get more seismometers – most active volcano in Wrangell-St Elias Range

- <http://blogs.discovermagazine.com/rockyplanet/2019/09/09/the-largest-volcano-in-alaska-gets-new-monitoring/>

Chicxulub meteor made impact with power equivalent to 10B WWII-era atomic bombs

- <https://www.rt.com/news/468486-dinosaur-killer-asteroid-10bn-nukes/>
- <https://www.forbes.com/sites/ericmack/2019/09/09/the-day-the-dinosaurs-died-told-in-horrifying-new-detail/#5d5e543b6df5>

Marine seismic & depth processing will be conducted in the Turkish Black Sea

- <https://www.rivieramm.com/news-content-hub/black-sea-contrast-part-of-increasing-marine-seismic-activity-56140>

Kalman filtering provides new technique for predicting volcanic activity

- <https://www.sciencedaily.com/releases/2019/09/190910095411.htm>

This Jurassic turtle may have been stepped on by a dinosaur

- <https://www.iflscience.com/plants-and-animals/paleontologists-discover-fossil-of-ancient-turtle-possibly-squashed-by-a-dinosaur/>

Seismic activity increased over past 25 years in Tennessee – near New Madrid zone & in Appalachia

- <https://www.tennessean.com/story/news/local/2019/09/10/track-earthquakes-tennessee-interactive-map-database-new-madrid-fault-line-strongest-quake-100-years/2141766001/>

Volcanic-intrusive complex found below southern Tyrrhenian Sea at northern edge of Ionian Slab

- <https://eos.org/research-spotlights/new-volcanic-complex-found-below-the-southern-tyrrhenian-sea>

The 250th anniversary of the birth of Alexander von Humboldt

- <https://eos.org/opinions/the-scientist-who-connected-it-all>
- Antisana: <https://naturecoevocommunity.nature.com/users/303235-pierre-moret/posts/53467-antisana-the-true-humboldtian-mountain>

Controlled chemical detonations in Nevada desert improve techniques to distinguish nuclear explosion vs EQ ground shaking

- <https://eos.org/articles/nuclear-bomb-or-earthquake-explosions-reveal-the-differences>

New versus traditional views of plate tectonics

- <https://eos.org/articles/tinkering-with-tectonics>

Potential new method for accurately portraying clouds given the scales on which they form

- <https://eos.org/research-spotlights/a-super-solution-for-modeling-clouds>

Models that reproduce soil moisture more accurately recreate cumulus cloud behavior

- <https://eos.org/research-spotlights/soil-moisture-drives-great-plains-cloud-formation>

Comprehensive evaluation of land surface energy & hydrologic responses to atmospheric river precipitation

- <https://eos.org/editor-highlights/hydrological-footprint-of-atmospheric-rivers-on-land>

Analysis of long-term, lower atmosphere-ionosphere energy coupling as updraft strength increases in cumulonimbus clouds

- <https://eos.org/research-spotlights/charging-thunderclouds-affect-ionospheric-conductivity>

Just how much does a cloud weigh?

- <https://www.treehugger.com/natural-sciences/how-much-does-cloud-weigh.html>

USGS estimates 53.8T cubic feet of natural gas hydrate resources in North Slope of Alaska

- <https://www.usgs.gov/news/usgs-estimates-538-trillion-cubic-feet-natural-gas-hydrate-resources-alaska-north-slope>
- USGS Fact Sheet: <https://pubs.usgs.gov/fs/2019/3037/fs20193037.pdf>

Cryodrakon boreas – new Cretaceous pterosaur species discovered in Alberta, Canada

- <http://www.sci-news.com/paleontology/cryodrakon-boreas-pterosaur-07582.html>

The link between animals and atmospheric oxygen during the Cambrian explosion

- http://www.spacedaily.com/reports/Do_animals_control_earths_oxygen_level_999.html

TEMPEST-D provided view of multiple vertical layers of convection in Hurricane Dorian

- http://www.spacedaily.com/reports/An_Inside_Look_at_Hurricane_Dorian_from_a_Mini_Satellite_999.html

Fossil remains languished for almost 250 years then identified as *Mystriosaurus laurillardii*

- https://eurekaalert.org/pub_releases/2019-09/uoe-mjc091219.php

Can caldera collapse be forecast?

- <https://blogs.scientificamerican.com/observations/can-we-forecast-caldera-collapses/>

Magnetic field of Earth initiated pole flip millennia before the last pole reversal

- <https://www.scientificamerican.com/podcast/episode/earths-magnetic-field-initiated-a-pole-flip-many-millennia-before-the-switch/>

Landslides during construction of Morehall & Broomhead reservoirs in Sheffield, England

- <https://blogs.agu.org/landslideblog/2019/09/12/broomhead/>

Sources of elevated heavy metal concentrations in sediments & benthic marine invertebrates in western Antarctic Peninsula

- <https://www.bas.ac.uk/data/our-data/publication/sources-of-elevated-heavy-metal-concentrations-in-sediments-and-benthic/>
- Paper: <https://www.sciencedirect.com/science/article/pii/S0048969719342512?via%3Dihub>

A new era of field geology on the Moon and other bodies in the Solar System?

- <https://www.brightsurf.com/news/article/091119491980/are-we-prepared-for-a-new-era-of-field-geology-on-the-moon-and-beyond.html>

A link between deep sea methane emissions and ice ages

- <https://www.brightsurf.com/news/article/091119491918/geologists-found-links-between-deep-sea-methane-emissions-and-ice-ages.html>
- Paper: <https://advances.sciencemag.org/content/5/8/eaaw1450.full>

Paper: Warm bias in climate predictions & projections caused by lack of consideration of snow layer on Arctic sea ice

- <https://www.nature.com/articles/s41467-019-11975-3>

Paper: Holocene pollen record in annually-laminated Maar Lake in NE China reveals synchronous ~500-year quasi-periodic changes in monsoon cycle over last 8,000 years

- <https://www.nature.com/articles/s41467-019-12138-0>

Paper: Forecasting magnitude of largest expected earthquake during future time interval

- <https://www.nature.com/articles/s41467-019-11958-4>

Paper: Evidence of major tectonic structure in initial state – Al-Idrissi Fault System in Alboran Sea

- <https://www.nature.com/articles/s41467-019-11064-5>

Paper: Major uncertainties in sea-level rise impact for deltas – errors potentially larger than century of sea level rise – contrast with dire warning

- <https://www.nature.com/articles/s41467-019-11602-1>
- <https://www.scientificamerican.com/article/new-elevation-measure-shows-climate-change-could-quickly-swamp-the-mekong-delta/>

Numerical modeling of processes that originally differentiated the lithosphere – implications for surface tectonics on early Earth

- <https://phys.org/news/2019-09-mathematical-continents.html>

Lightning flashes illuminate cloud structure & storm cell behavior – new tool for predicting hazards

- <https://phys.org/news/2019-09-lightning-illuminate-storm-behavior.html>

Sea ice extent in Arctic nearing annual minimum

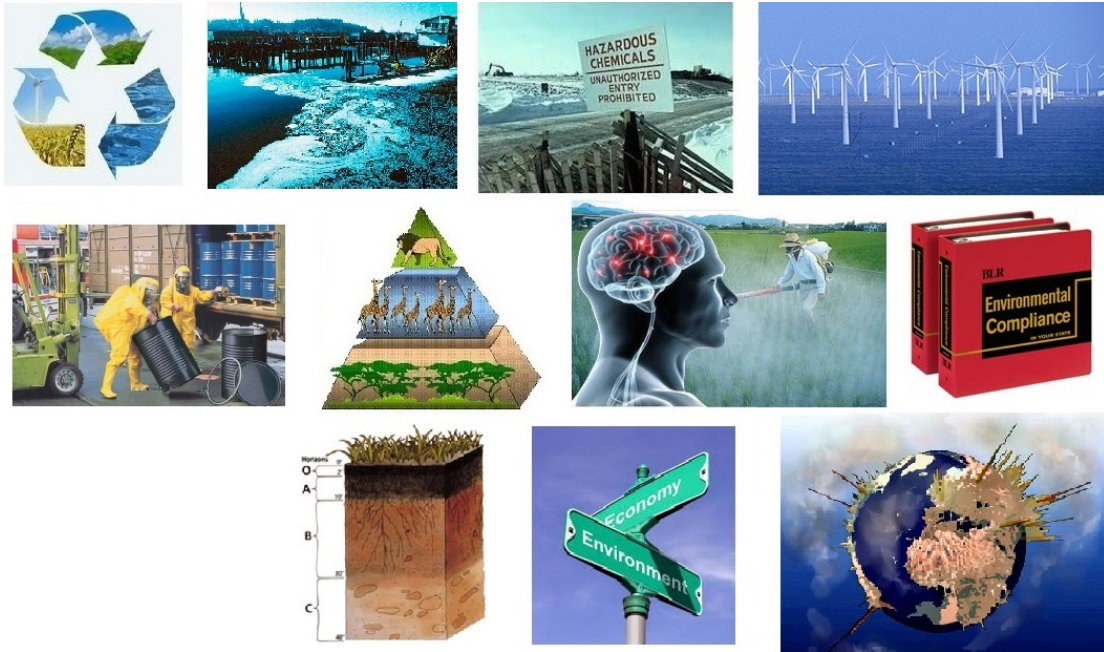
- <https://phys.org/news/2019-09-sea-ice-arctic.html>

Earthquake symmetry and early warning systems

- <https://scitechdaily.com/earthquake-symmetry-and-what-it-means-for-early-warning-systems/>

The enigma of tin in the Bronze Age – source deposits in Europe based on isotope systematics

- <https://www.sciencedaily.com/releases/2019/09/190913120830.htm>
- Paper: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0218326>



Environmental Science Bulletin Board – 16 September 2019 – compiled by Elaine J. Hanford

Accidental death of woman in Yosemite National Park to be investigated

- <https://www.sacbee.com/news/california/article234793507.html>
- <https://www.nationalparkstraveler.org/2019/09/arizona-woman-killed-fall-yosemites-half-dome>

CRS In Focus reports on harmful freshwater algal blooms

- Overview: <https://crsreports.congress.gov/product/pdf/IF/IF10690>
- Causes, Challenges & Policy Considerations: <https://crsreports.congress.gov/product/pdf/R/R44871>

Mountain lion killed in second attempt to cross I405 in Los Angeles

- https://start.att.net/news/read/article/newser-mountain_lion_accomplishes_amazing_feat_is_killed-rnewsernor/category/news

Perspective: WOTUS and recent court ruling

- <https://www.jdsupra.com/legalnews/drowning-in-confusion-what-is-a-water-42748/>
- <https://www.mrctv.org/blog/fed-court-strikes-down-obama-epas-rights-killing-productivity-smothering-waters-united-states>
- <https://www.enr.com/articles/47507-trump-administration-rolls-back-2015-clean-water-rule>

San Mateo, California, to upgrade sewer system as part of \$1B Clean Water Program

- https://www.smdailyjournal.com/news/local/ground-breaks-for-wastewater-project/article_ec7b8816-cf8e-11e9-911f-ab6f85bf69d6.html

Boundary layer ozone air pollution from India also fouls up air quality in adjoining countries

- <https://qz.com/india/1705179/indias-pollution-hurting-pakistan-bangladesh-nepal-sri-lanka/>

200 clean-burning natural gas electric power plants under construction across the US – but global warming alarmists still tout so called “green” energy sources

- <https://www.msn.com/en-us/news/us/as-climate-change-threatens-earth-us-to-open-nearly-200-power-plants/ar-AAH1IG5>
- Wind turbines: <https://www.powerlineblog.com/archives/2019/09/the-environmental-fiasco-of-wind-energy.php>
- Solar energy: <https://www.americanexperiment.org/2019/08/environmental-disaster-solar-energy/>

Why??? In vitro fertilization results in birth of twins to 74-year-old woman in India

- https://www.huffpost.com/entry/mangayamma-yaramati-74-twins_I_5d7670ebe4b07521023090b2

Plan to move native fish from Lower Darling River – part of \$10M rescue package to mitigate impacts

- <https://www.msn.com/en-us/news/world/australia-launches-emergency-relocation-of-fish-as-largest-river-system-faces-collapse/ar-AAH1COd>

Smallpox still the only disease that has been eradicated by humans

- <https://www.msn.com/en-us/news/world/australia-launches-emergency-relocation-of-fish-as-largest-river-system-faces-collapse/ar-AAH1COd>

Brazil provided incentives for farmers to slash & burn in the Amazon rainforest in Brazil – now difficult to stop the process

- <https://www.msn.com/en-us/news/world/why-brazilian-farmers-are-burning-the-rainforest---and-why-its-difficult-for-bolsonaro-to-stop-them/ar-AAGZa2E>

California wants to rollback environmental protections in Sacramento-San Joaquin River Delta

- <https://www.latimes.com/california/story/2019-09-07/california-trump-environment-federal-laws-water>

Allegiant Stadium in Las Vegas will incorporate earthquake protections & thermal expansion

- <https://www.reviewjournal.com/business/stadium/earthquake-protections-being-built-into-allegiant-stadium-1842608/>

Perspective: Climate change is convenient excuse for transforming economy & policy & hyperbole

- <https://www.msn.com/en-us/news/opinion/climate-change-a-convenient-excuse-for-dems-to-transform-economy/ar-AAGTcQ6>

Potential fine for CBS as “Young Sheldon” used simulated Emergency Alert System tone

- <https://www.msn.com/en-us/tv/news/fcc-proposes-dollar272000-fine-against-cbs-for-young-sheldon-alleged-emergency-tone-misuse/ar-AAH2klu>

Rosasco “hold-over” fire has been burning in Yellowstone National Park for 5 years

- <https://www.uniondemocrat.com/csp/mediapool/sites/UnionDemocrat/LocalNews/story.csp?cid=3809312&sid=753&fid=151>

Plan to remove unprecedented number of trees from Utah public lands intended to reduce fire risk, improve greater sage grouse habitat & increase forage for cattle & deer

- <https://www.nationalgeographic.com/environment/2019/09/pinyon-pine-juniper-forests-utah-torn-out-why/>

Anticipated changes in 7 environmental rules

- <https://www.eenews.net/stories/1061111769>

Tougher arsenic standard made drinking water safer – revision of the Maximum Contaminant Level

- <https://www.ktvz.com/news/osu-study-tougher-arsenic-standard-made-drinking-water-safer/1119334089>
- Abstract & figure: <https://pubs.acs.org/doi/10.1021/acs.est.9b02358>

California woman bought face cream from Mexico – now in coma from methylmercury poisoning

- <https://www.yahoo.com/lifestyle/sacramento-woman-gets-mercury-poisoning-from-skin-cream-bought-in-mexico-214607999.html>

Assessing the global nitrogen imbalance & approach to maximize positive effects of agricultural nitrogen

- <https://eos.org/research-spotlights/solving-the-global-nitrogen-imbalance>

4 to 5 trillion cigarette butts as litter each year – an environmental legacy

- <https://eos.org/articles/will-cigarette-butts-be-our-environmental-legacy>

Pollution in Chicago Area Waterway System may be impeding invasion of silver carp

- <https://eos.org/articles/is-chicago-water-pollution-halting-a-silver-carp-invasion>

4 ways to reduce the amount of plastic that you eat

- <https://www.treehugger.com/plastic/4-ways-eat-less-plastic.html>

FLUXNET database may help discern whether thawing permafrost is a source or sink for carbon

- <https://eos.org/science-updates/is-the-northern-permafrost-zone-a-source-or-a-sink-for-carbon>
- Interactive map: <https://cosima.nceas.ucsb.edu/carbon-flux-sites/>

USEPA pledging to severely cut back on animal testing of toxic chemicals over next 15 years

- <https://www.npr.org/sections/health-shots/2019/09/10/759435118/epa-chief-pledges-to-severely-cut-back-on-animal-testing-of-chemicals>

Perspective: Kraft-Heinz rejects petition to remove phthalates from their products

- <https://www.ehn.org/phthalates-kraft-macaroni-and-cheese-2640320333.html>

60-Minutes Australia video on glyphosate links to cancer

- <https://www.ehn.org/watch-60-minutes-australia-on-glyphosate-links-to-cancer-and-the-countrys-pending-lawsuits-2640307455.html>

Improved understanding of urban heat island effect

- https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=299172&org=GEO&from=news

New mathematical model of pore structure & groundwater flow may help predict toxic plume movement

- https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=299172&org=GEO&from=news

Copernicus Sentinel-5P monitored trace gases emitted by fires across the Amazon

- http://www.terradaily.com/reports/Monitoring_air_pollution_from_fires_999.html

Phyllosphere – home to microorganisms that establish and maintain themselves over a growing season

- https://www.eurekalert.org/pub_releases/2019-09/msu-fp090919.php
- Paper: <https://www.nature.com/articles/s41467-019-11974-4>

Small variations in topography are important for survival of Saguaro

- https://www.eurekalert.org/pub_releases/2019-09/uaa-tcs091119.php

Allegheny County, Pennsylvania, \$2B plan to reduce sewage overflows

- <https://www.post-gazette.com/news/environment/2019/09/11/Alocsan-plan-approval-reduce-sewage-storm-overflows-Pittsburgh-Allegheny/stories/201909110131>

New Orleans mandates that all new commercial parking surfaces must be porous

- https://www.nola.com/news/politics/article_534386f6-d31e-11e9-a8f0-dba5c6e48a1c.html

Biological age of the body reflected in epigenetic clock – rejuvenate it with drugs?

- <https://www.nature.com/articles/d41586-019-02638-w>

Illegal trade in beetles, spiders, scorpions flourishing to meet demands for exotic pets & collector items

- <https://www.nationalgeographic.com/animals/2019/09/bug-smuggling-big-business/>

The “sport” of horse racing may be nearing its end – dead horses & floating pharmacy

- <https://sports.yahoo.com/let-this-be-the-end-of-horse-racing-195812563.html>

Los Angeles approved plans for largest solar & battery energy storage project in the US

- <https://www.theconstructionindex.co.uk/news/view/la-backs-record-breaking-solar-and-battery-plant>

Carbon County, Montana, approves \$406M 114-turbine wind farm – federal tax break

- <https://www.apnews.com/a42d6b6aa4924ff09b6a2e95d13b23c1>

Volcanic eruptions have long duration and cause “avoidable” human deaths

- <https://phys.org/news/2019-09-volcanoes-people-eruptions-deaths.html>



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Japan will have “no choice” but to dump radioactive Fukushima water into Pacific

- <https://www.telegraph.co.uk/news/2019/09/10/japan-will-have-dump-radioactive-water-pacific-fukushima-runs/>

Coastal erosion on Lake Michigan threatens 400-ton historic building in Orchard Beach State Park

- <https://www.mlive.com/news/2019/09/lake-michigan-erosion-threatens-state-parks-400-ton-historic-building.html>

Coastal Awareness month in Wisconsin

- <https://kdal610.com/news/articles/2019/sep/10/coastal-awareness-month-in-wisconsin/935671/>

Quebec Port Authority plans \$775M contain terminal construction – will extend existing wharf on St Lawrence River to accommodate “environmentally & technologically advanced” design

- <https://canada.constructconnect.com/dcn/news/infrastructure/2019/09/quebec-port-authority-plans-for-775-million-container-terminal-construction>

Coastal erosion and subsidence threaten village of Lahou-Kpanda on Ivory Coast

- <http://news.trust.org/item/20190910114132-hp9sz>

Workshops gathered public comment on draft of 2019 New Hampshire Coastal Flood Risk Summary – open till end of the month for online comments

- <https://www.seacoastonline.com/news/20190910/public-workshops-on-coastal-flood-risk-sept-10-11>

- Report Part 1 – Science:
<https://scholars.unh.edu/cgi/viewcontent.cgi?article=1209&context=ersc>
- Report Part 2 – Guidance:
<https://scholars.unh.edu/cgi/viewcontent.cgi?article=1210&context=ersc>

NC Coastal Federation & Restore America’s Estuaries will hold Living Shorelines Workshop in October

- <https://www.coastalreview.org/2019/09/living-shorelines-workshop-set-for-october/>

Countermeasure to Democrats introducing bills to ban offshore drilling for O&G

- <https://thehill.com/policy/energy-environment/460893-house-republicans-introduce-alternative-energy-bill>
- <https://thehill.com/policy/energy-environment/460170-dems-to-take-up-offshore-drilling-plans-once-congress-reconvenes>
- <https://www.apnews.com/af456b61a33c432095180f6d3050b388>

Connecticut & Rhode Island vying to be leader in offshore wind power production

- <https://energynews.us/2019/09/11/northeast/connecticut-rhode-island-vie-for-roles-in-emerging-offshore-wind-industry/>

Taiwanese Formosa 1 offshore wind farm begins generating power

- <https://www.maritime-executive.com/article/taiwanese-offshore-wind-farm-generates-first-power>

Human use of resources, land management & lifestyles have significant impacts on coral reefs

- <https://www.dailytarheel.com/article/2019/09/coral-reef-research>

Beavers are genius eco-engineers creating pools for juvenile salmon on Elwha River & creating beach

- <https://www.thedailyworld.com/news/wood-chips-fly-at-elwha-river-as-beavers-make-a-comeback/>

Restoring reefs in the Great Lakes

- <https://www.sentinel-standard.com/news/20190908/restoring-reefs-in-great-lakes>

Ecological study to gather scientific data for better decision making on dredging Nauset Estuary

- <https://capecodchronicle.com/en/5437/orleans/4936/A-Little-Dredging-Drudgery-Reveals-Common-Goals-On-Nauset-Estuary-Dredging.htm>

Ongoing concern for endangered sturgeons in Hudson River Estuary

- <https://thehudsonindependent.com/ongoing-concern-about-hudson-river-sturgeons/>

Seal population attests to recovery of Thames River estuary – once declared “biologically dead”

- <https://europeansting.com/2019/09/10/the-uks-river-thames-has-come-back-to-life-with-a-seal-population-to-prove-it/>

Comprehensive survey of land conservation and funding in Chesapeake Bay Watershed

- <https://www.timesleader.com/sports/755032/new-report-marks-land-conservation-progress-in-chesapeake-bay-watershed>
- Report: http://www.chesapeakeconservation.org/wp-content/uploads/2019/08/CCP_publication_SD_FD-R-FINAL.pdf

Dutch expert to assess \$1.3B plan for flood protection of lower Manhattan east side waterfront

- <https://ny.curbed.com/2019/9/10/20857891/east-side-flood-protection-plan-independent-review>
- <https://ny.curbed.com/2019/8/1/20749875/east-side-coastal-resiliency-city-planning-commission-hearing>
- ESCR: <https://www1.nyc.gov/site/escr/vision/vision.page>

High levels of POP industrial fluids & mercury found in dolphins living in the English Channel

- <https://www.brightsurf.com/news/article/091219492056/environment-pollutants-found-in-skin-and-blubber-of-english-channel-dolphins.html>
- Paper: <https://www.nature.com/articles/s41598-019-48485-7>

Post-glacial rebound, changes to AMOC & changes in ice mass contribute to apparent sea level rise along the US East Coast – other factors like land subsidence & erosion should also be considered

- <https://phys.org/news/2019-09-in-depth-factors-contributing-sea-east.html>
- Download free pdf of report: <https://www.whoi.edu/sealevelrise/>