

Climate and Human History

Stephan Matthiesen

- | | |
|------|--------------------------------------|
| 19/1 | 1. Climate and climate history |
| 26/1 | 2. The Ice Age |
| 2/2 | 3. Farming and City States |
| 9/2 | 4. The Roman Empire |
| 16/2 | 5. Tang and Maya in the 10th century |
| 23/2 | 6. Mediaeval Optimum; Little Ice Age |
| 1/3 | 7. El Niño through the ages |
| 8/3 | 8. Miscellaneous topics |
| 15/3 | no class! |
| 22/3 | 9. Current and future changes |
| 29/3 | 10. Summary and re-cap |

Topics

Medieval Famines in Egypt

An extraterrestrial impact as cause of the
Younger Dryas period?

How weather has changed history

Solar storms, auroras and the vulnerability of
our society

Nile floods and famine in Medieval Warm period

Medieval Warm Period: possible weakening of El Nino, more La Nina conditions
Less rainfall in source regions of the river Nile

Historical accounts:

Hassan, F. (2007). Extreme Nile floods and famines in medieval Egypt (AD 930–1500) and their climatic implications. *Quaternary International*, 173-174 , 101-112.

Egypt 962-967

„people ate each other“

According to Taqi el-Dine Al-Maqrizi (1365–1441), one of Egypt's most distinguished historians, ... low floods and famine during the 10th century (962–967) forced people to eat dogs and cats until there was a shortage of dogs. As conditions worsened, people ate each other.

(Hassan 2007)

Abdel-Latif Al-Baghdadi reporting famine in 1200-02

The events of the AD 1200–1202 famine are recorded in gruesome details by Abdel-Latif Al-Baghdadi (d. 1231/2), an Iraqi scholar who was visiting Cairo at that time.

For when the sun had entered the Sign of the Ram, the air was corrupted, the plague and contagion began to make itself felt, and the poor, pressed by the famine which struck them always, ate carrion, corpses, dogs, and excrement and the filth of animals. This went on a long time, until they began to eat little children.

The population was devastated by the famine. They carried from Cairo each day between 100 and 500 dead bodies. In Old Cairo, the number of the dead was so high that they could not bury the dead and had to throw them outside the city. In the end, there were no more people even to carry them out. Over a period of 22 months, 111,000 were dead. Al-Baghdadi laconically remarks that he was not counting those who were eaten or died in other parts of Egypt and on the roads, particularly the road to Damascus (Syria). “Because I have inquired from all those who came from that road, who told me that it was planted with corpses and human parts.’

(Hassan 2007)

Abdel-Latif Al-Baghdadi's scientific tests (1200-02)

Armed with his knowledge as a chemist and with his expertise in medicine, which he taught while in Cairo, he examined the water of the low Nile and observed that it was greenish and smelly, with decayed vegetation forming a thin coating. He also observed suspended particles of plant debris, which he interpreted to be algae after he boiled the water. Al-Baghdadi remarked that boiling the water did not improve its quality, and that both its taste and smell worsened.

He attributed the algae and suspended plant matter to low rainfall at the source and to the Sudd Lake in Equatorial Africa.

(Hassan 2007)

Evidence from central Mexico supporting the Younger Dryas extraterrestrial impact hypothesis

Isabel Israde-Alcántara^a, James L. Bischoff^{b,1}, Gabriela Domínguez-Vázquez^c, Hong-Chun Li^d, Paul S. DeCarli^e, Ted E. Bunch^f, James H. Wittke^f, James C. Weaver^g, Richard B. Firestone^h, Allen Westⁱ, James P. Kennett^j, Chris Mercer^k, Sujing Xie^l, Eric K. Richman^m, Charles R. Kinzieⁿ, and Wendy S. Wolbachⁿ

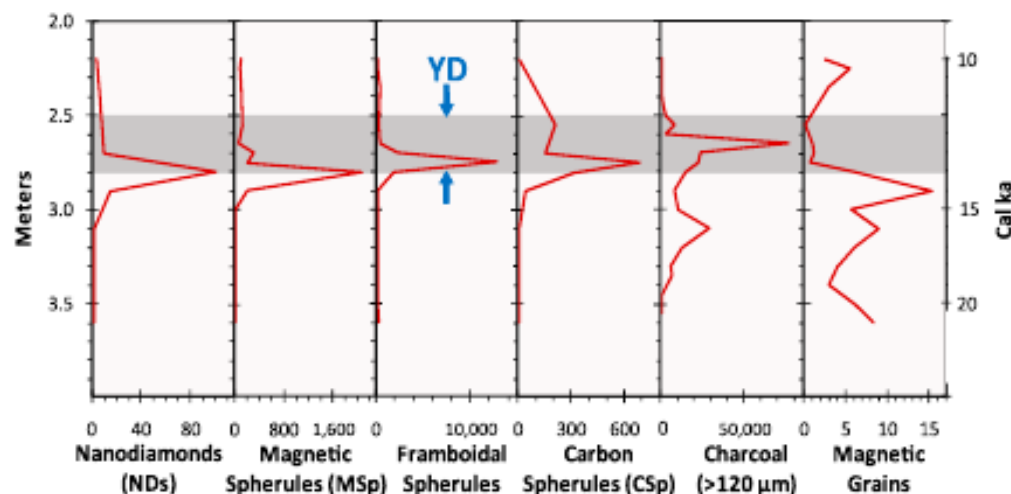


Fig. 4. Markers over the interval between 3.6 and 2.2 m. The YD episode (12.9 to 11.5 ka) is represented by dark band. YDB layer is at 2.8 m. NDs and magnetic impact spherules both peak at the YD onset, whereas framboidal spherules, CSp, and charcoal peak higher in the sequence. Magnetic grains peak just prior to the YD onset. NDs are in ppb; MSp, framboidal spherules, CSp, and charcoal are in no./kg; magnetic grains in g/kg.

Multiple hypotheses have been proposed to explain these YDB peaks in markers, and all but one can be rejected. For example, the magnetic impact spherules and NDs cannot result from the influx of cosmic material or from any known regular terrestrial mechanism, including wildfires, volcanism, anthropogenesis, or alternatively, misidentification of proxies. Currently, only one known event, a cosmic impact, can explain the diverse, widely distributed assemblage of proxies.

Israde-Alcántara, I. et al. (2012). Evidence from central Mexico supporting the Younger Dryas extraterrestrial impact hypothesis. *Proceedings of the National Academy of Sciences*.

Clovis culture

ca 13500-12500 BP



The 12.9-ka ET Impact Hypothesis and North American Paleoindians

by Vance T. Holliday and David J. Meltzer

... calibrated radiocarbon ages demonstrate continuous occupation across the time of the purported “Younger Dryas event.”

Whether or not the proposed extraterrestrial impact occurred is matter for empirical testing in the geological record.

Insofar as concerns the archaeological record, **an extraterrestrial impact is an unnecessary solution for an archaeological problem that does not exist.**



Contents lists available at [ScienceDirect](#)

Earth-Science Reviews

journal homepage: www.elsevier.com/locate/earscirev



The Younger Dryas impact hypothesis: A requiem

Nicholas Pinter ^{a,*}, Andrew C. Scott ^b, Tyrone L. Daulton ^c, Andrew Podoll ^a, Christian Koeberl ^d,
R. Scott Anderson ^e, Scott E. Ishman ^a

In summary, none of the original YD impact signatures have been subsequently corroborated by independent tests. Of the 12 original lines of evidence, seven have so far proven to be non-reproducible. The remaining signatures instead seem to represent either (1) non-catastrophic mechanisms, and/or (2) terrestrial rather than extraterrestrial or impact-related sources. In all of these cases, sparse but ubiquitous materials seem to have been misreported and misinterpreted as singular peaks at the onset of the YD. Throughout the arc of this hypothesis, recognized and expected impact markers were not found, leading to proposed YD impactors and impact processes that were novel, self-contradictory, rapidly changing, and sometimes defying the laws of physics. The YD impact hypothesis provides a cautionary tale for researchers, the scientific community, the press, and the broader public.

„How the weather has changed history“

- 1274: Kublai Khan attacks Japan, Navy destroyed in Taifun („Kamikaze“=God-Wind)
- 1588: Spanish Armada destroyed in storm
- 1812: Tecumseh dies in battle in thick fog; the last American Indian leader
- 1815: Napoleon defeated at Waterloo, stuck in mud after heavy rain
- 1939: Soviet army defeated in Finland
- 1942: Hitler invades Russia, Stalingrad
- 1945: D-Day landing

Barrage of solar flares could cause chaos on Earth

Find a Job | Our Papers | Feedback

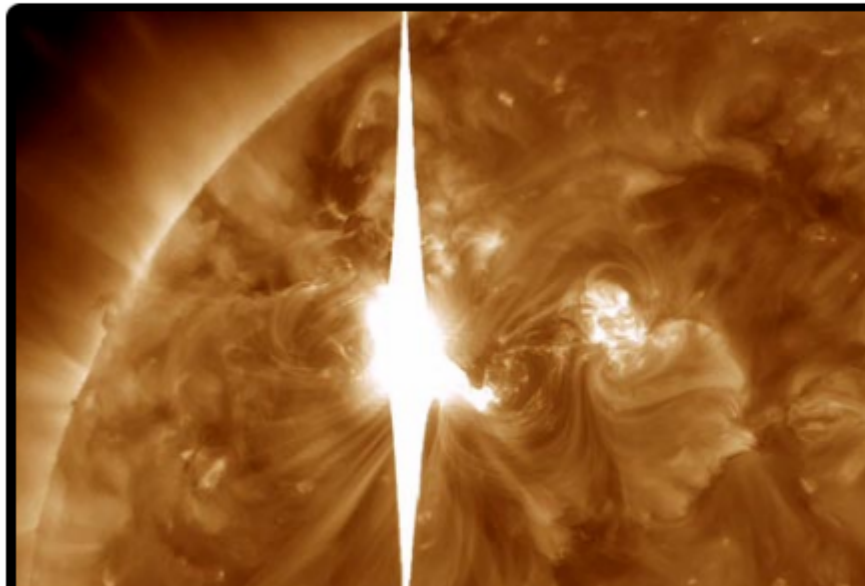
Thursday, Mar 08 2012 9AM 6°C 12PM 10°C 5-Day Forecast

MailOnline

Science & Tech

Home | News | U.S. | Sport | TV&Showbiz | Femail | Health | **Science** | Money | RightMinds | Coffee Break | Travel | Columnists

Science Home | Pictures | Gadgets Gifts and Toys Store



Sunspot group unleashes barrage of solar flares which could cause chaos on Earth

The largest solar flare in five years is racing toward Earth, threatening to unleash a torrent of charged particles that could disrupt power grids, GPS and flights.



The crazy plan for the 'Sahara Forest'



'Alien' parasite that eats fish's tongues



Revealed: How Baghdad froze 1,000 years ago

Site Web

Headlines

Most Read

- ▶ Did the MOON sink the Titanic? Freak tides caused icebergs to fill shipping lanes 100 years ago
- ▶ Peace for parents? New 'smart' baby suit contains sensors that tell you WHY your child is crying
- ▶ Does listening to rock make you racist? Seven minutes of Bruce Springsteen makes students favour white people over others
- ▶ Good cop, bad cop... robo cop? Eye-watching computer spots liars more accurately than police interrogators
- ▶ The Dark Triad: The science of why women like Rihanna dig bad boys like Chris Brown
- ▶ Did life once thrive away? It has more v lingered in the 'Gol
- ▶ Getrich AND die try more money - but th happier, says study
- ▶ It's a real-life Trans military Cheetah ro breaks record for le
- ▶ From HERE to etern rollercoaster that promises to literally kill you

'Alien' parasite that eats fish's tongues

Revealed: How Baghdad froze 1000 years ago

... today's Guardian (web):

Newspaper of the year | 8 March 2012 | Last updated less than one minute ago

Your search terms...

The Guardian

Search

theguardian

Weather

London



11°C

5°C

[News](#) | [Sport](#) | [Comment](#) | [Culture](#) | [Business](#) | [Money](#) | [Life & style](#) | [Travel](#) | [Environment](#) | [TV](#) | [Data](#) | [Video](#)
[Mobile](#) | [Offers](#) | [Jobs](#)

News

[UK](#) | [World](#) | [Development](#) | [US](#) | [Politics](#) | [Media](#) | [Education](#) | [Society](#) | [Science](#) | [Tech](#) | [Law](#) | [Football](#) | [Olympics](#) | [Observer](#)

Breaking news: Osborne 'to beat borrowing target' - PA



Syrian minister announces defection from regime

Last updated four minutes ago



Abdo Hussameldin resigns on YouTube, saying he is joining anti-government revolt

LATEST

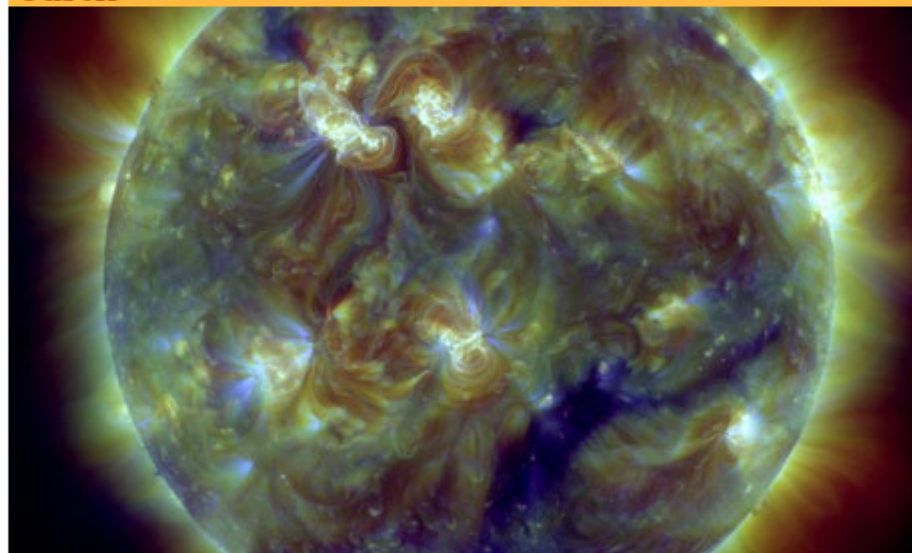
"9.35am: An activist in Homs has welcomed the apparent defection of deputy oil minister Abdo Hussameldin, but he said it won't help the uprising..."

— all today's developments on our live blog

- UN's Baba Amr visit 'a distraction'
- Panetta rows back on calls for military intervention

Solar storm en route

Fears of disruption as storm heads towards earth



Watch our TV ad

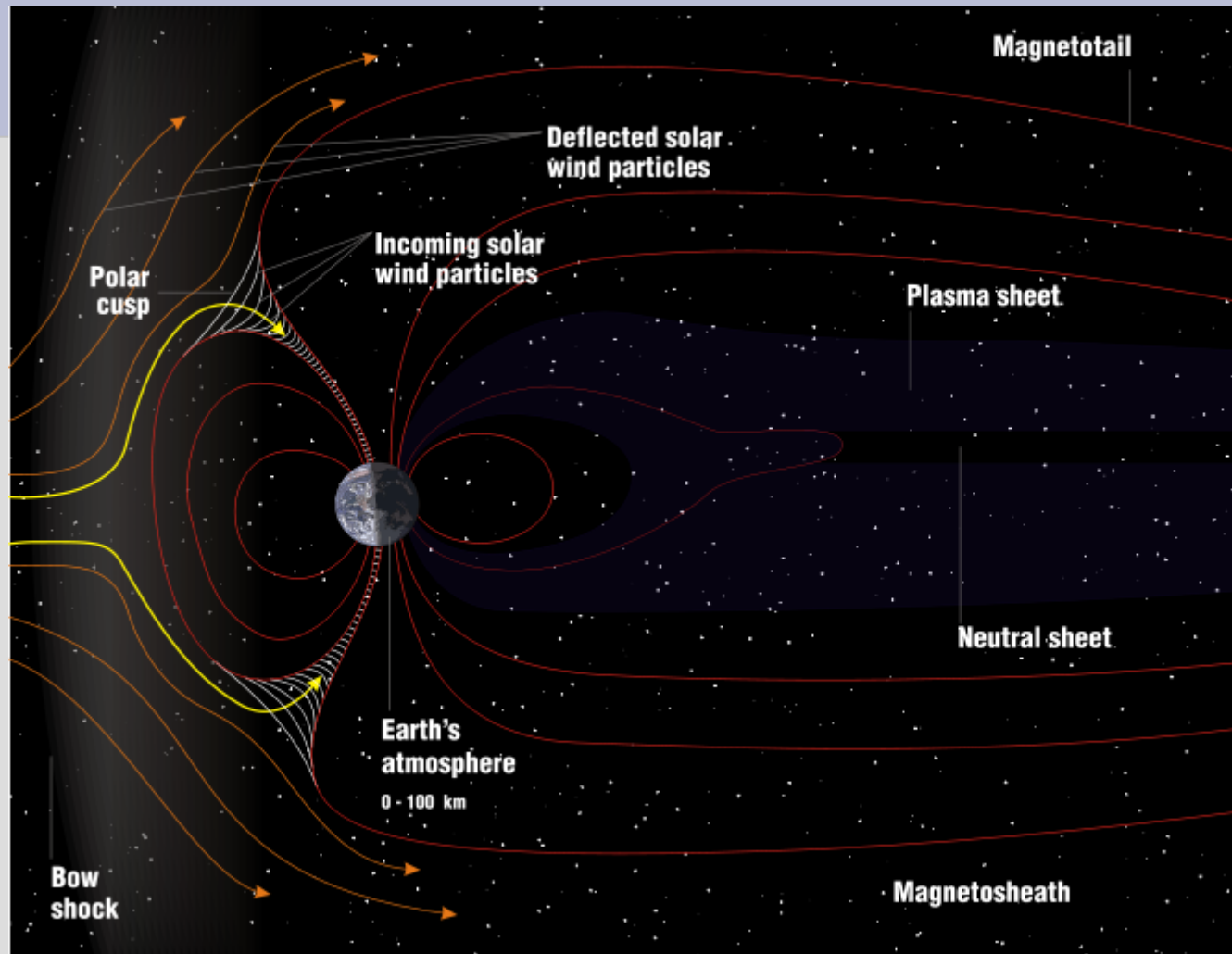


Online dating



Find your soulmate with the Guardian's dating site

Aurora



Aurora videos in real speed:

<https://www.youtube.com/watch?v=UnalthlawjE>

<https://www.youtube.com/watch?v=fLO54IJJeks>

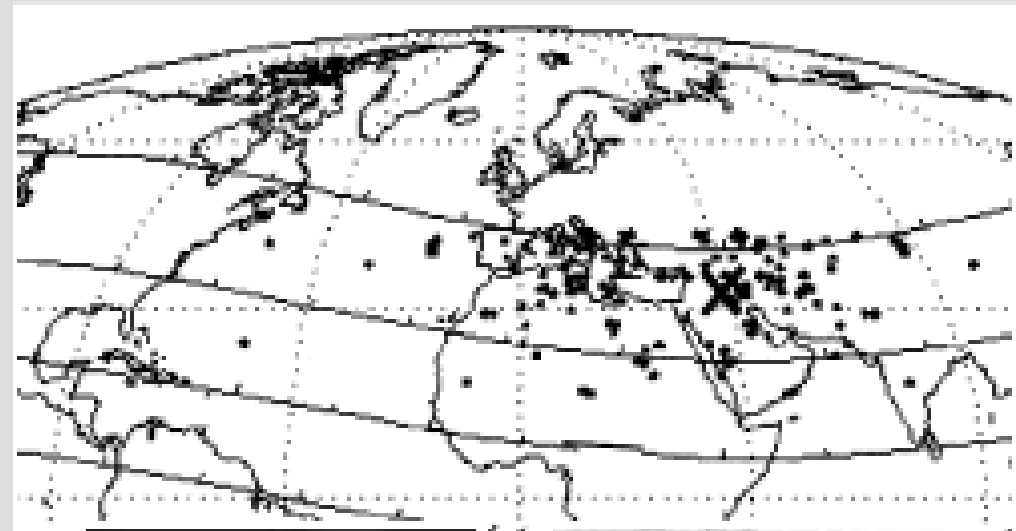
(Note: many other videos are time lapse or static images!)

Prophet Ezekiel: an Aurora?

And I looked, and, behold, a whirlwind came out of the north, a great cloud, and a fire infolding itself, and a brightness was about it, and out of the midst thereof as the colour of amber, out of the midst of the fire.

Also out of the midst thereof came the likeness of four living creatures. And this was their appearance; they had the likeness of a man.

As for the likeness of the living creatures, their appearance was like burning coals of fire, and like the appearance of lamps: it went up and down among the living creatures; and the fire was bright, and out of the fire went forth lightning.



Estimation of possible aurora sightings in 600 BC. Dots represent North American sightings of Auroras in 1859, but shifted so that the magnetic North Pole has the position of 2600 years ago.

Siscoe, George L. et al. (2002): Ezekiel and the Northern Lights: Biblical Aurora Seems Plausible. *eos*, 83 (16), S. 173, 179.

How vulnerable/resilient is modern society?

Solar flares

Volcanic eruptions

Hurricanes
(Katrina 2005)

North Sea Flood
(Hamburg 1962)
340 casualties



Proc. Nat. Acad. Sciences current issue (6 Mar 2012)

Interesting articles to read&discuss:

Butzer, Endfield: Critical perspectives on
historical collapse,

<http://dx.doi.org/10.1073/pnas.1114772109>

Butzer: Collapse, environment, and society

<http://dx.doi.org/10.1073/pnas.1114845109>

Climate and Human History

Stephan Matthiesen

- | | |
|-------------|--------------------------------------|
| 19/1 | 1. Climate and climate history |
| 26/1 | 2. The Ice Age |
| 2/2 | 3. Farming and City States |
| 9/2 | 4. The Roman Empire |
| 16/2 | 5. Tang and Maya in the 10th century |
| 23/2 | 6. Mediaeval Optimum; Little Ice Age |
| 1/3 | 7. El Niño through the ages |
| 8/3 | 8. Miscellaneous topics |
| 15/3 | no class! |
| 22/3 | 9. Current and future changes |
| 29/3 | 10. Summary and re-cap |