## Weather, Climate, and Climate Change--What the Data Tell Us Climate History 2, and... History Falsifies Climate Alarmist Sea Level Claims



# Climate History 2

Several sources for paleoclimate or climate history available. Among my favorites:

https://wattsupwiththat.com/paleoclimate/

http://notrickszone.com/2017/05/29/80-graphs-from-58-new-2017-papers-invalidate-claims-of-unprecedented-global-scale-modern-warming/

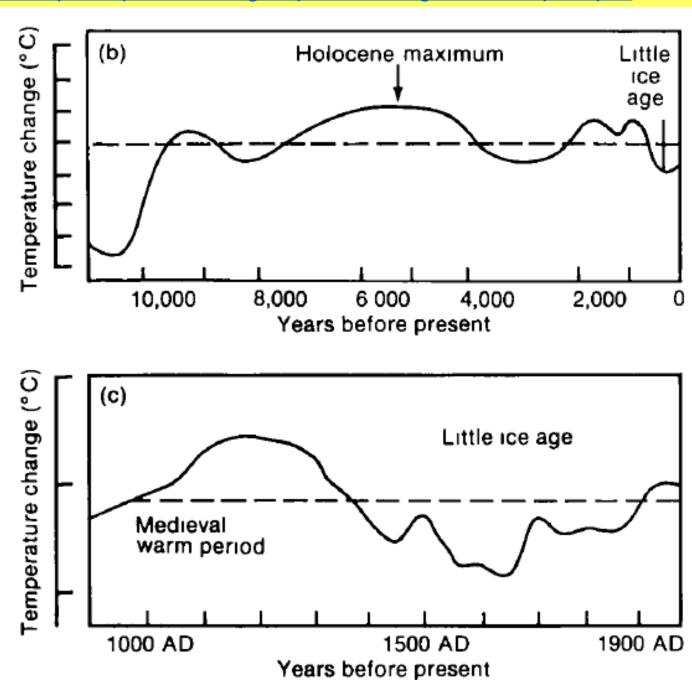
http://notrickszone.com/2017/09/28/update-the-2017-explosion-of-non-hockey-stick-graphs-continues/

http://notrickszone.com/global-warming-disputed-300-graphs/

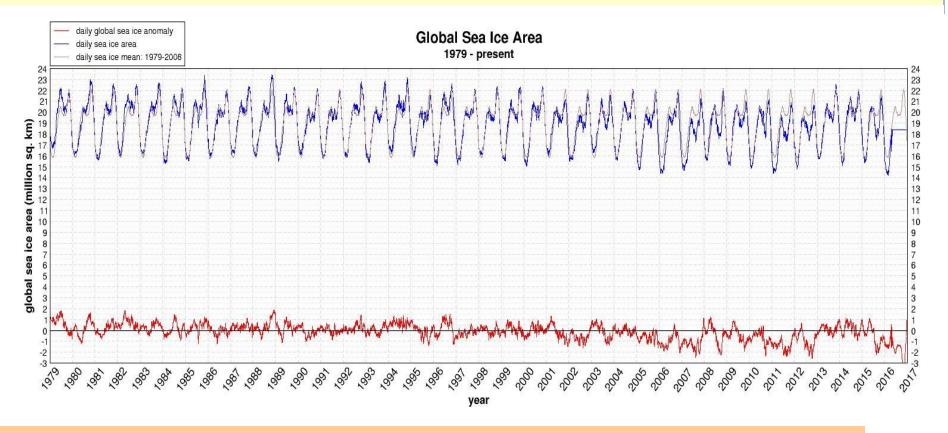
There are scores of histories, most of which depend on various "proxy" determinations.

I chose those which seem to be most exemplary or representative.

From the earliest
IPCC report, the
graphic shows
warmer temperatures
in the Medieval
Warm Period
(280 PPM CO2)
...warmer than today.

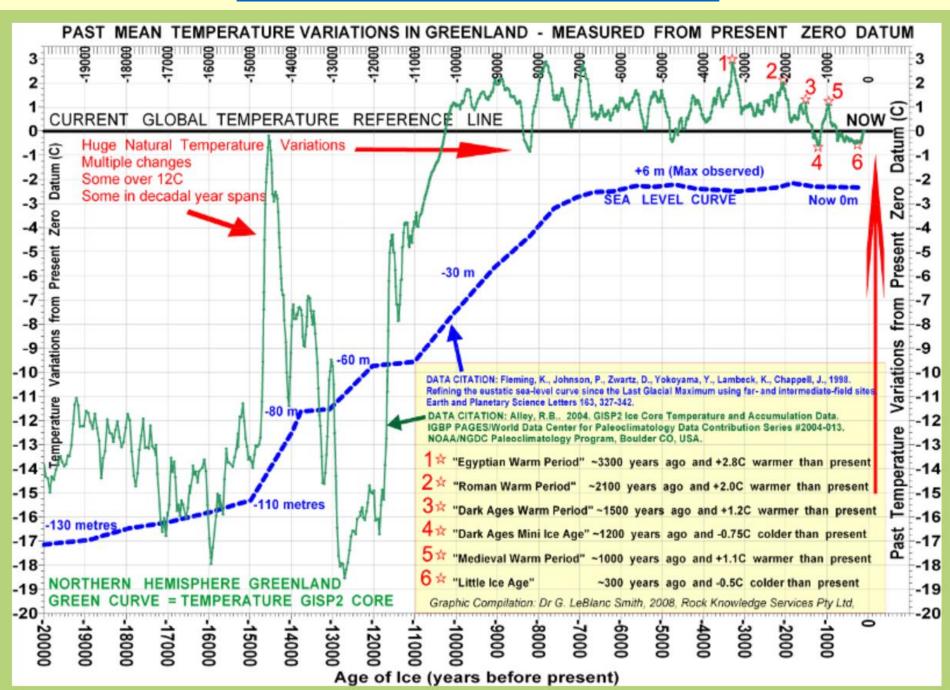


#### http://arctic.atmos.uiuc.edu/cryosphere/IMAGES/global.daily.ice.area.withtrend.jpg



With so-called human-caused CO2-fueled Global Warming ongoing, why has the global sea ice cover changed so little1979-2015 or since the NASA satellites were launched?

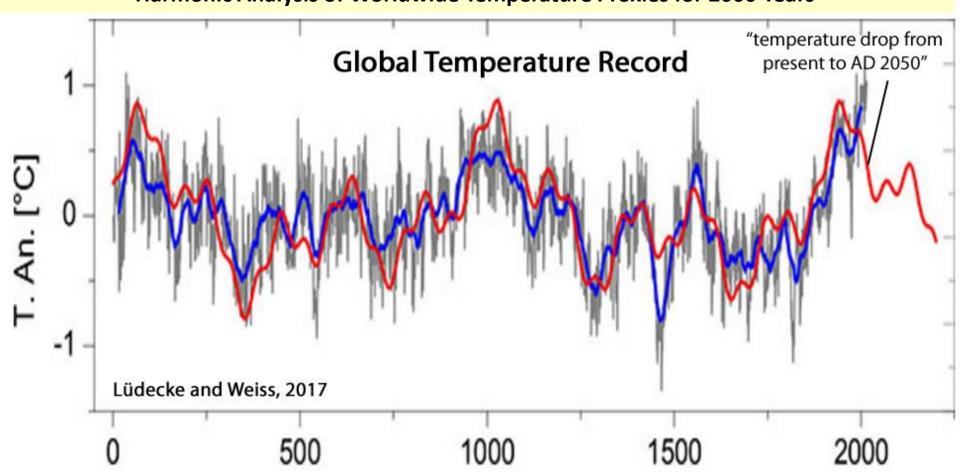
"Cryosphere Today" from UIUC used to be a reliable source, but after equipment failure on an Air Force DMSP satellite, data collection became problematic, and so did some of the data. Cryosphere Today is now off-line.



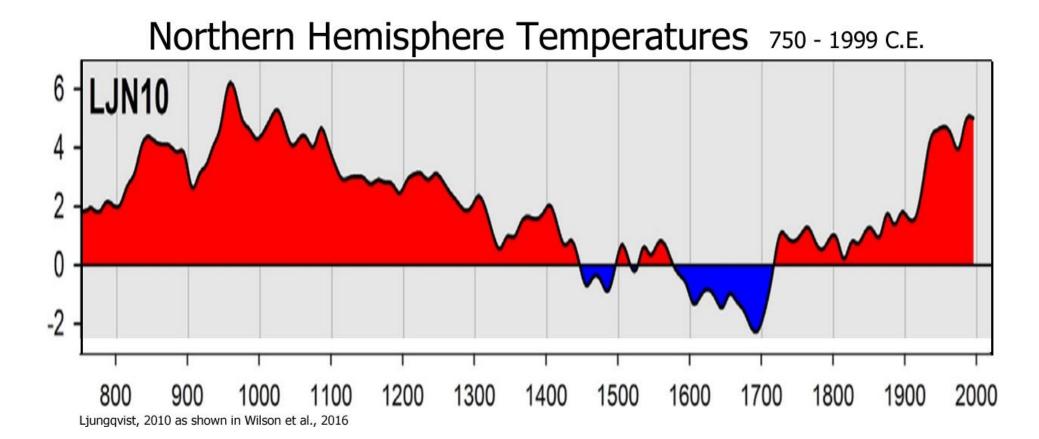
#### https://benthamopen.com/ABSTRACT/TOASCJ-11-44/

Journal article finds significant power in the 1000-1450 year "Bond Cycles"-- attempts to project that analysis into the future.

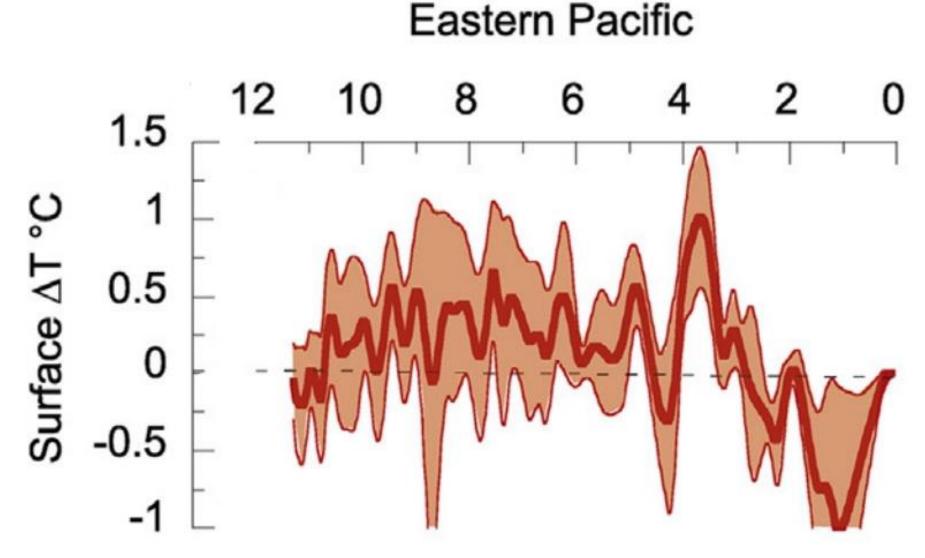




Last millennium northern hemisphere summer temperatures from tree rings: Part I: The long term context



Paleo-perspective on ocean heat content: Lessons from the Holocene & Common Era



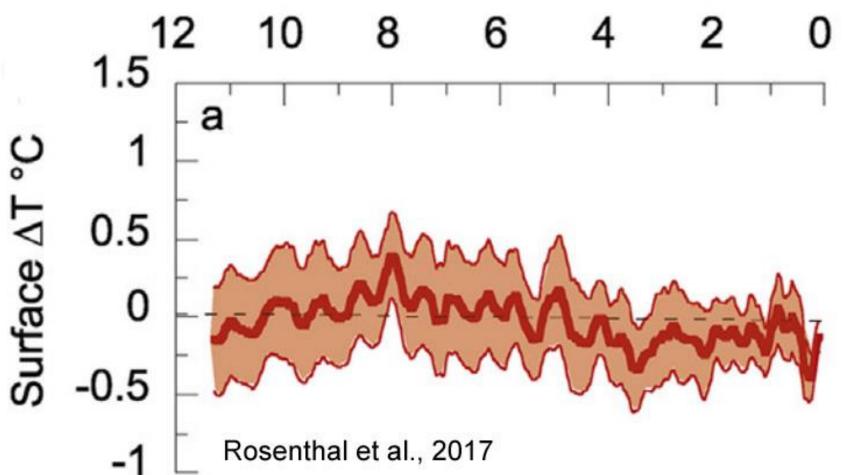
Rosenthal et al., 2017

Paleo-perspective on ocean heat content: Lessons from the Holocene & Common

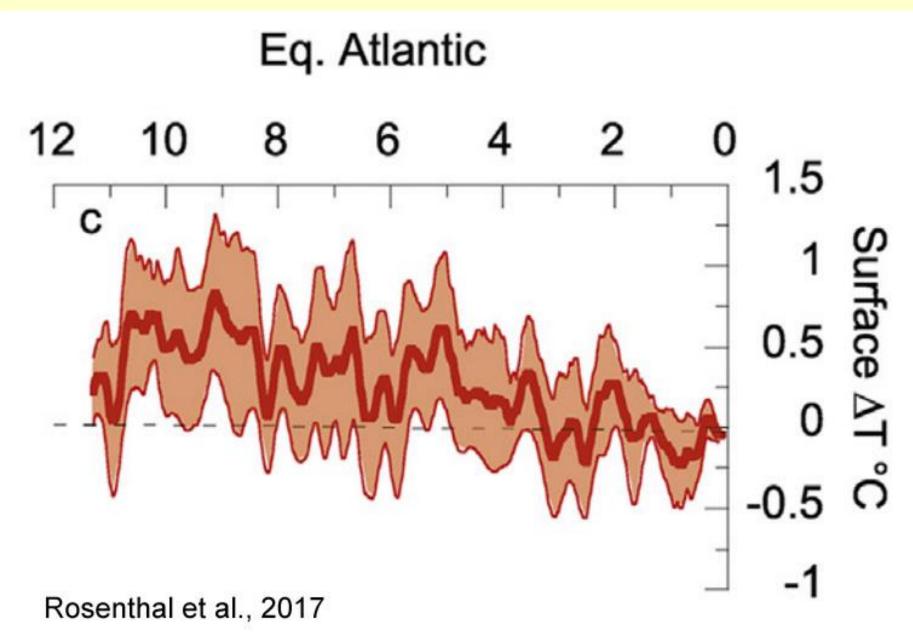
Western Pacific Warm Pool

Sea Surface Temperatures

WPWP

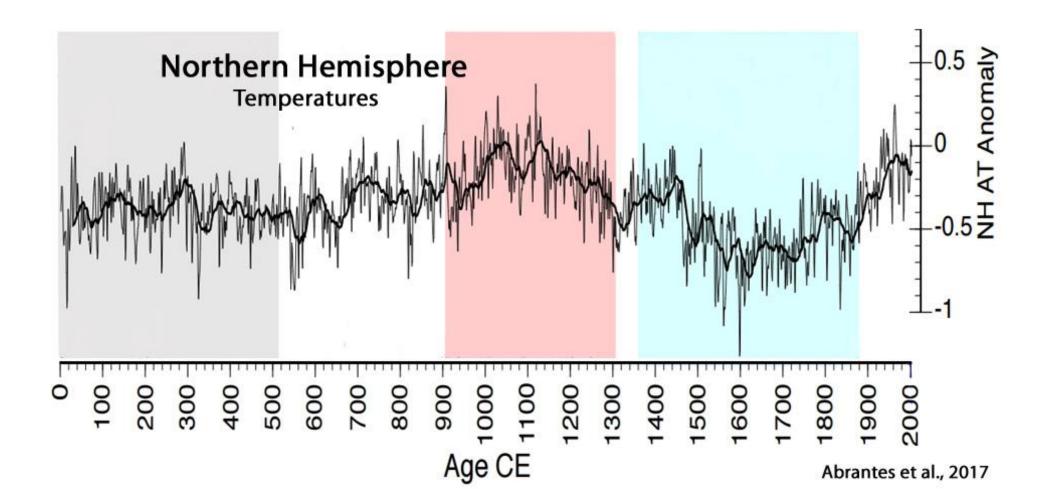


Paleo-perspective on ocean heat content: Lessons from the Holocene & Common Era

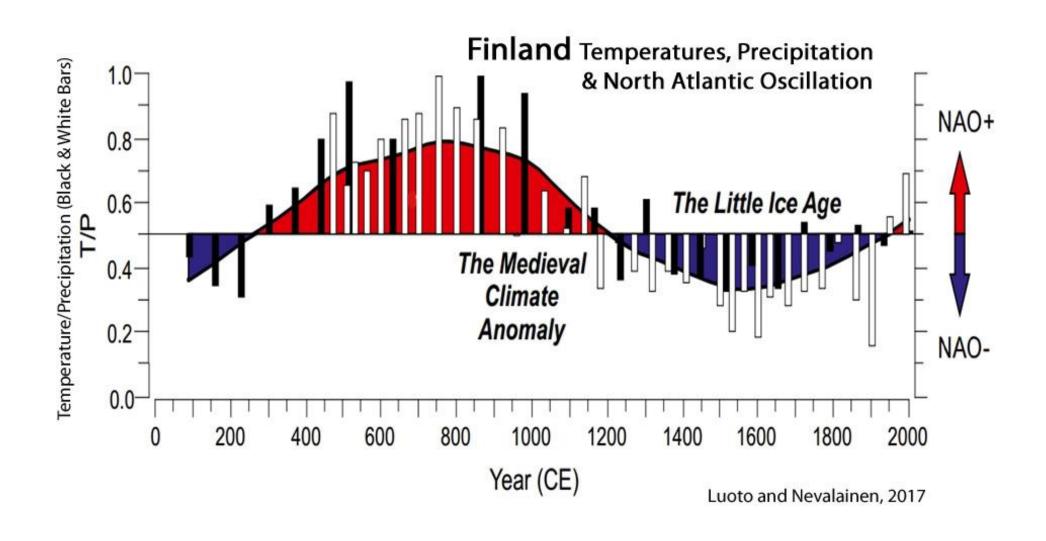


### Historical Climate off the Atlantic Iberian Peninsula

Abrantes<sup>1,2</sup>, Fátima; Teresa Rodrigues<sup>1,2</sup>, Marta Rufino<sup>2,3</sup>; Emília Salgueiro<sup>1,2</sup>; Dulce Oliveira<sup>1,2,4</sup>;

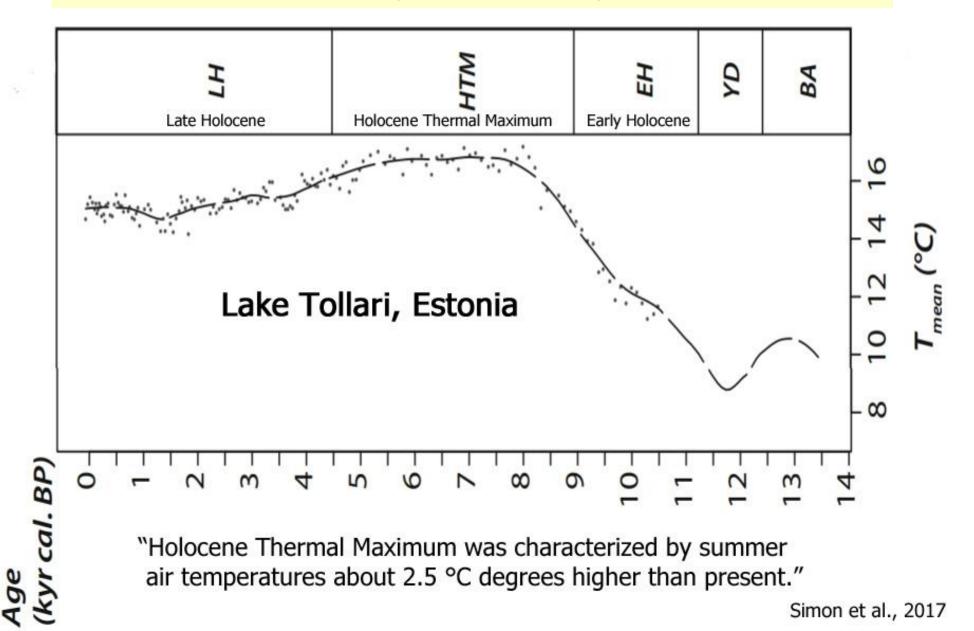


#### Temperature-precipitation relationship of the Common Era in northern Europe



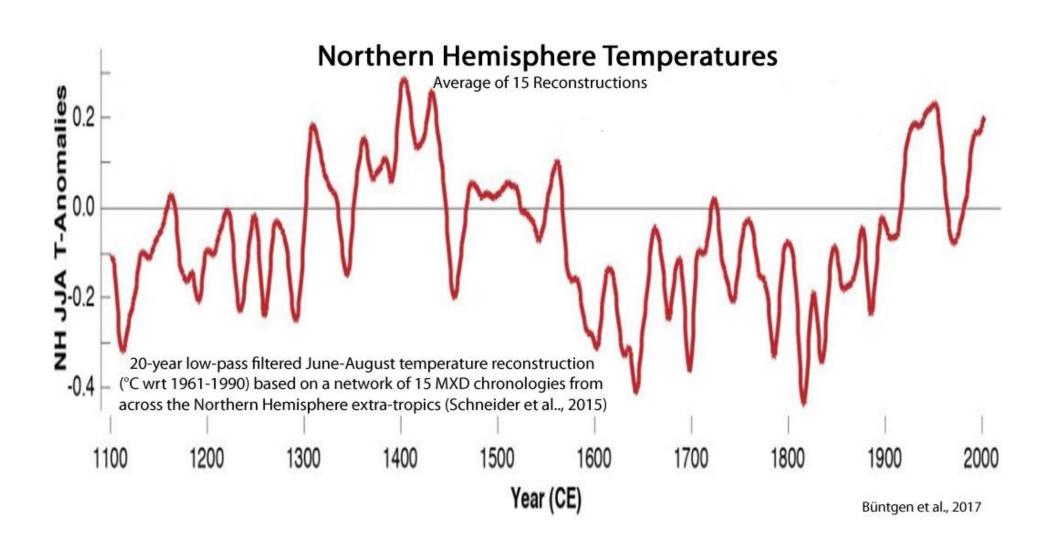
#### https://link.springer.com/article/10.1007/s10584-017-2074-1

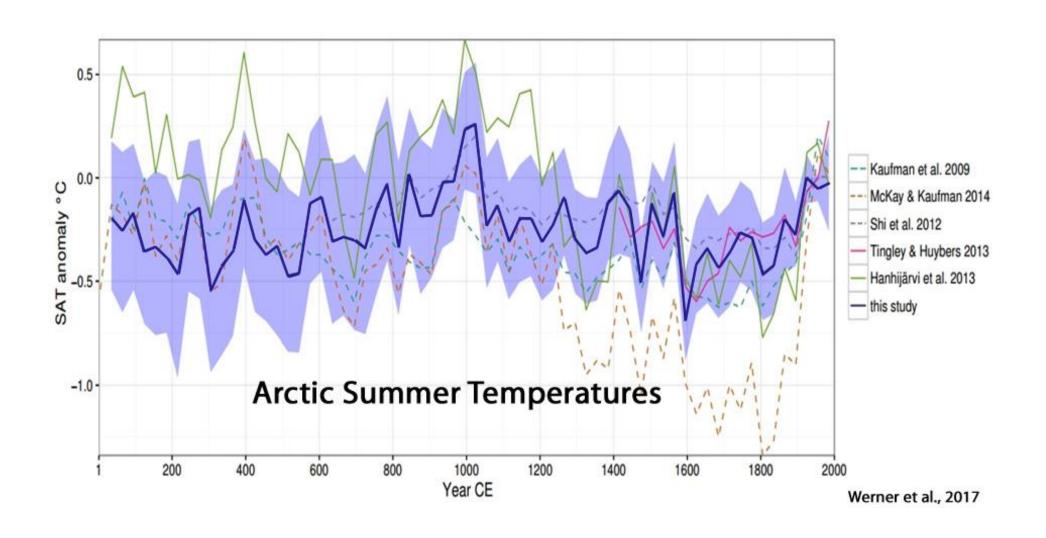
.... 14,000 years of climate-induced changes in carbon resources sustaining benthic consumers in a small boreal lake (Lake Tollari, Estonia)

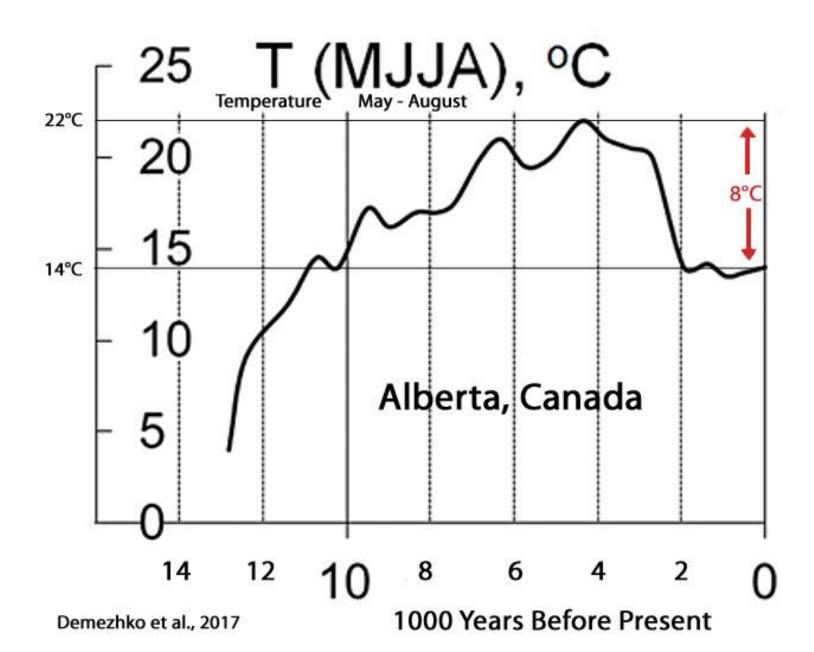


http://notrickszone.com/2017/05/29/80-graphs-from-58-new-2017-papers-invalidate -claims-of-unprecedented-global-scale-modern-warming/

https://sci-hub.cc/http://journals.ametsoc.org/doi/abs/10.1175/JCLI-D-16-0526.1







A 5000-year old Spruce in the Canadian Arctic. This tree grew during the Holocene Climatic Optimum. Trees no longer live there because the climate is colder now. This is now tundra.

Holocene landscape development and climatic change in the low arctic, Northwest Territories, Canada

<u>Palaeogeography, Palaeoclimatology, Palaeoecology</u> <u>Volume 205, Issues 3-4</u>, 30 March 2004, Pages 221-234

Professor Glen M. McDonald,
Director UCLA Institute for the Environment,
Full Professor, UCLA Dep't of Geography.
Chairman, Department of Geography,
UCLA

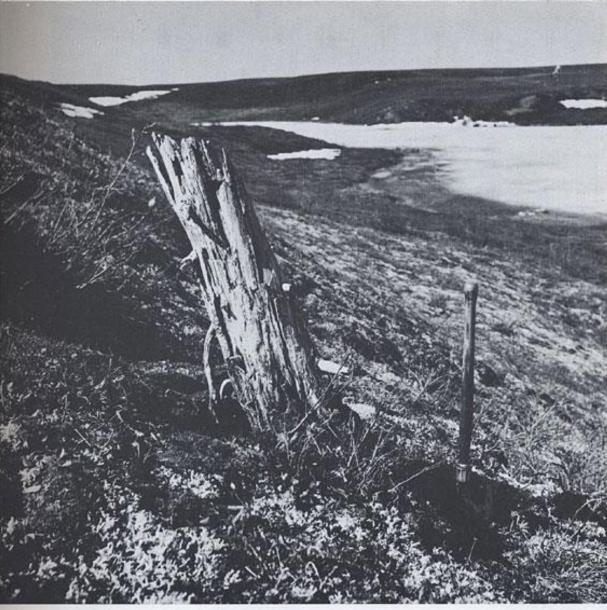
Similar Photo also in
"A Primer on CO2 and Climate,"
Howard C Hayden,
Vales Lake Publishing,
Pueblo, CO, pg 18.

Photo is in Dr Hubert Lamb's book, Climate, History, and the Modern World



http://drtimball.com/2012/sensationalist-and-distorted-climate-stories-increase-as-climate-

science-failures-exposed/



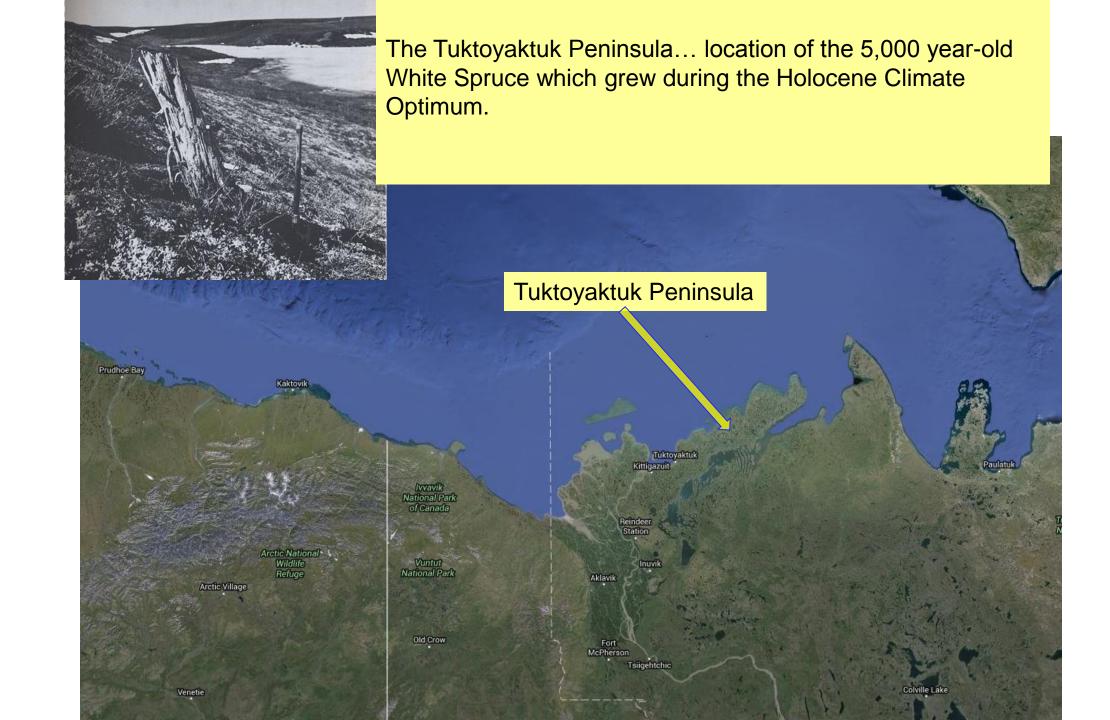
Tree Stump (Picea glauca) in the north Canadian tundra.

The stump, radiocarbon dated about 4940 (+/- 140) years BP is seen still standing on a steep bank on the Tuktoyaktuk Peninsula (69.7N 133.16W) which borders the Arctic Ocean (Beaufort Sea) east of the McKenzie Delta in extreme northwest Canada. This tree, in what is now tundra, shows wider growth rings than the nearest present day spruce forest 80-100 km further south near Inuvik n the lowest part of the McKenzie River valley.

Photograph kindly supplied by Professor J. C, Ritchie of Scarborough College, Toronto University

PLATE IV Tree stump (Picea glauca) in the north Canadian tundra.

The stump, radiocarbon dated about 4940 years (±140) B.P., is seen still standing on a steep



Area around Tuktoyaktuk today: <a href="http://www.tuktoyaktuk.ca/index.php/visiting/getting-here">http://www.tuktoyaktuk.ca/index.php/visiting/getting-here</a>
Tundra. Too cold for trees.







## What's happening to the climate is unprecedented



Published: April 9 2010 03:00 | Last updated: April 9 2010 03:00

From Prof Martin Rees and Dr Ralph J. Cicerone.

## **Unprecedented?**

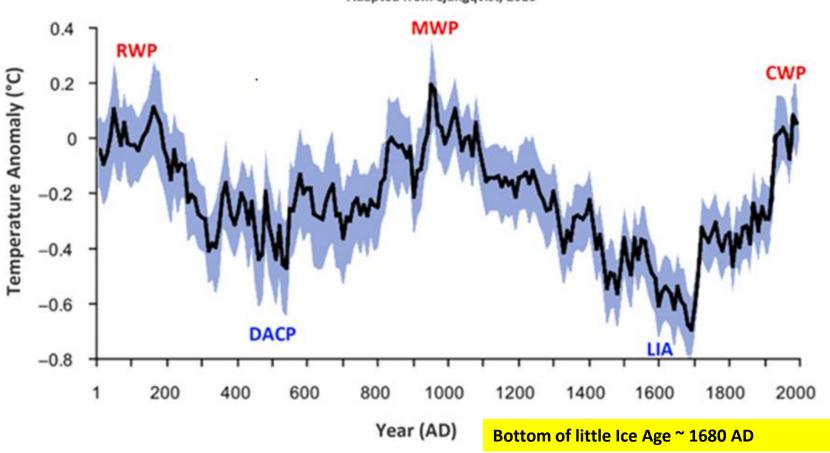
Prof Rees is president of the Royal Society in the UK,

Dr Cicerone is the President of the US National Academy of Science

Ljungqvist, F.C. 2010. A new reconstruction of temperature variability in the extra-tropical Northern Hemisphere during the last two millennia. *Geografiska Annaler Series A* 92: 339-351.

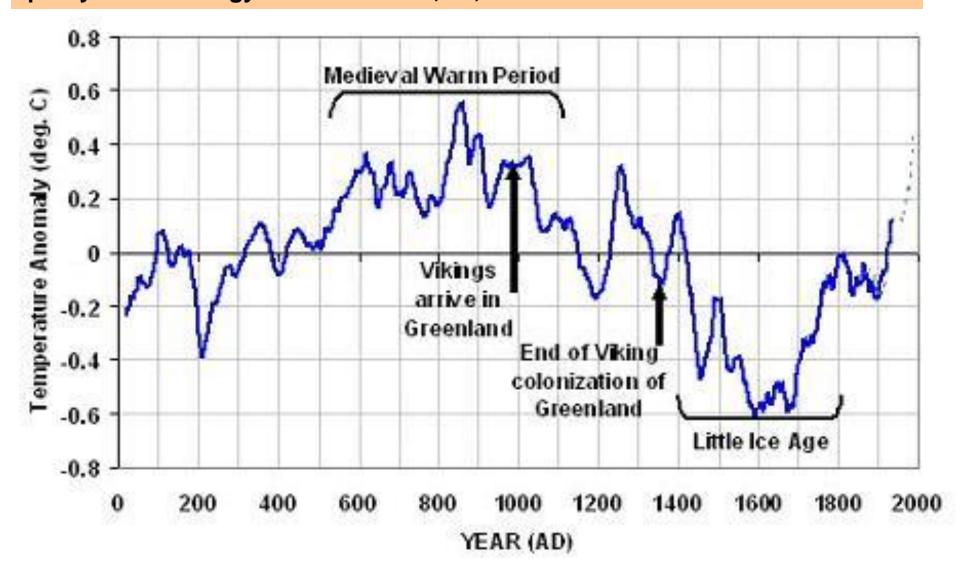
## **Unprecedented?**





Reconstructed extra-tropical (30-90°N) mean decadal temperature variations relative to 1961-1990 mean of the variance-adjusted 30-90°N CRUTEM3+HadSST2 instrumental temperature data of Brohan et al.(2006) and Rayner et al. (2006). Adapted from Ljungqvist (2010).

Loehle, 2007. A 2,000 year global temperature reconstruction on non-tree ring proxy data. Energy & Environment, 18, 1049-1058.



## The Medieval Warm Period happened in the Western USA!

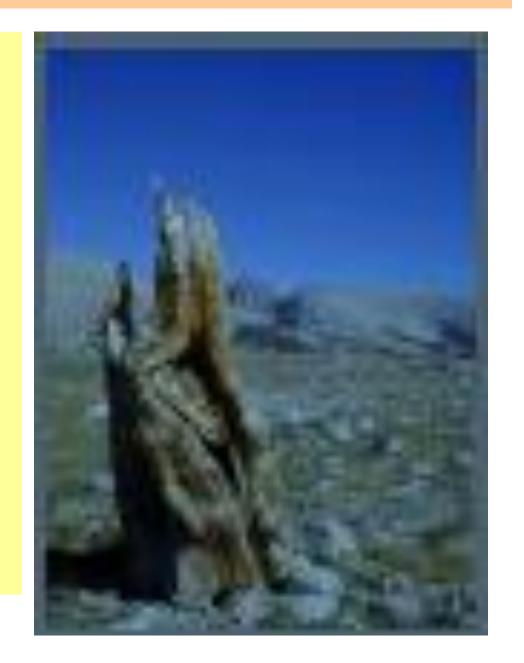
This grainy image is a Foxtail Pine.

1000 years old; it is found well above the present Tree Line.

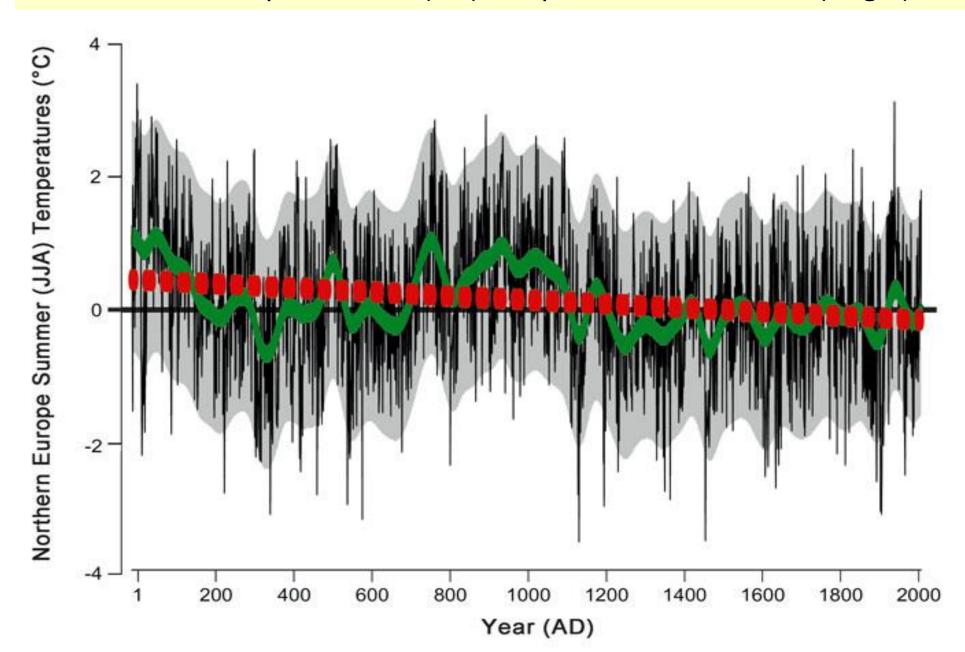
If this was warmest in the Holocene, the trees would be higher now.

Location:
Bighorn Plateau,
Sequoia National Park,
California.

Photo from
"A Primer on CO2 and Climate,"
Howard C Hayden,
Vales Lake Publishing,
Pueblo, CO, pg 18.

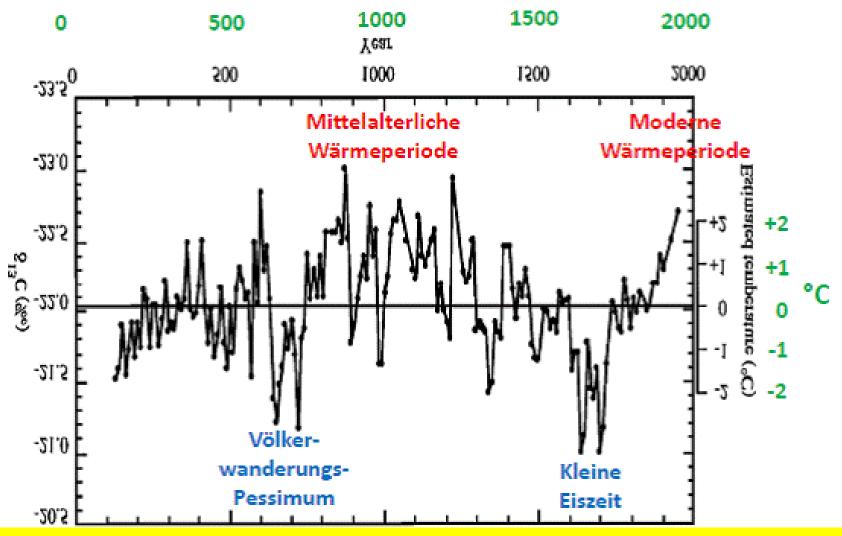


## Northern Europe Summer (JJA) Temperature Time Series (Deg C)



<u>Medieval Warm Period and the Little Ice Age as a local, North Atlantic phenomenon: Since</u>
<u>when is Japan located in the North Atlantic?</u>
(Tree ring study from Japan)

By Sebastian Lüning & Fritz Vahrenholt (Authors of The Cold Sun)



http://wattsupwiththat.com/2012/06/17/manns-hockey-stick-refuted-10-years-before-it-was-published/

A composite sea surface temperature record of the northern South China Sea for the past 2500 years: A unique look into seasonality and seasonal climate changes during warm and cold periods

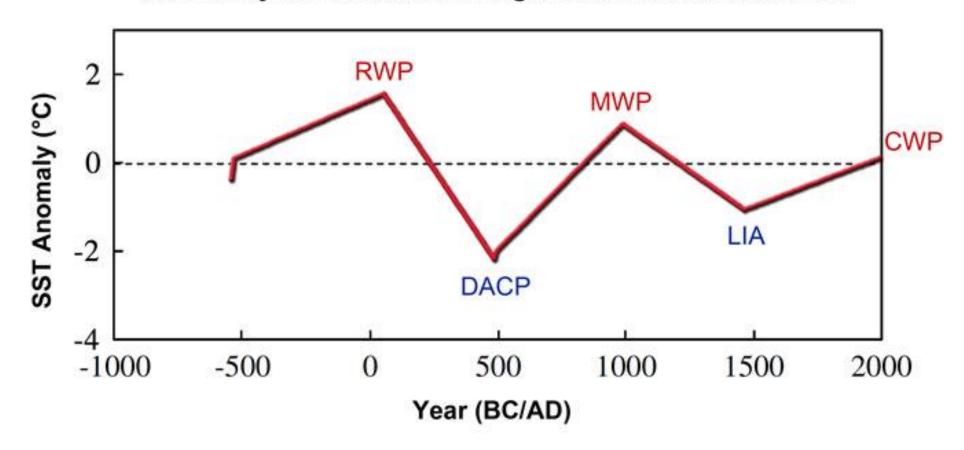
Earth-Science Reviews 141: 122-135.

Review Article

Pages 122-135

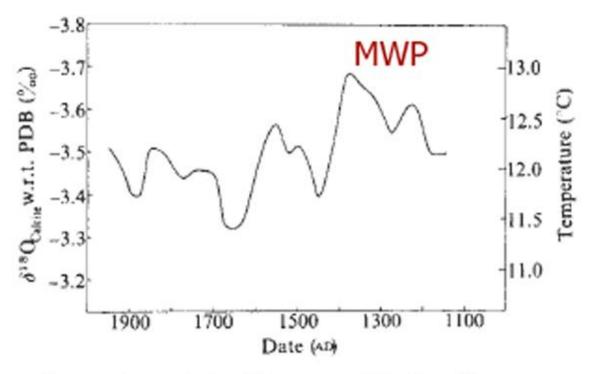
Hong Yan, Willie Soon, Yuhong Wang

## SST Proxy for the Northern Region of the South China Sea



Proxy sea surface temperatures in the northern South China Sea revealing warmer temperatures than present during Medieval (MWP) and Roman (RWP) times, and cooler than present temperatures during the Dark Ages Cold Period (DACP) and Little Ice Age (LIA). Adapted from Yan et al. (2015).

The Medieval Warm period occurred in New Zealand.



Temperatures derived from an 18O/16O profile obtained from a stalagmite found in a New Zealand. Adapted from Wilson et al. 1979.

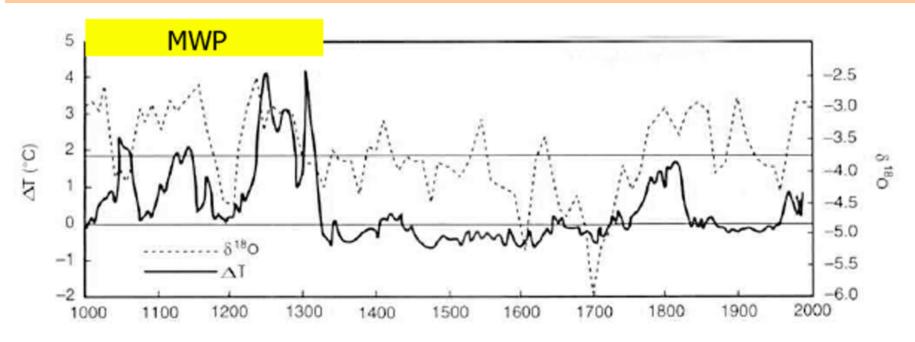
#### Reference

Wilson, A.T., Hendy, C.H. and Reynolds, C.P. 1979. Short-term climate change and New Zealand temperatures during the last millennium. *Nature* **279**: 315-317.

#### **Description**

Temperatures derived from an  $^{18}O/^{16}O$  profile through a stalagmite found in a New Zealand cave (40.67°S, 172.43°E) revealed the Medieval Warm Period to have occurred between AD 1050 and 1400 and to have been 0.75°C warmer than the Current Warm Period.

#### The Medieval Warm Period occurred in South Africa.

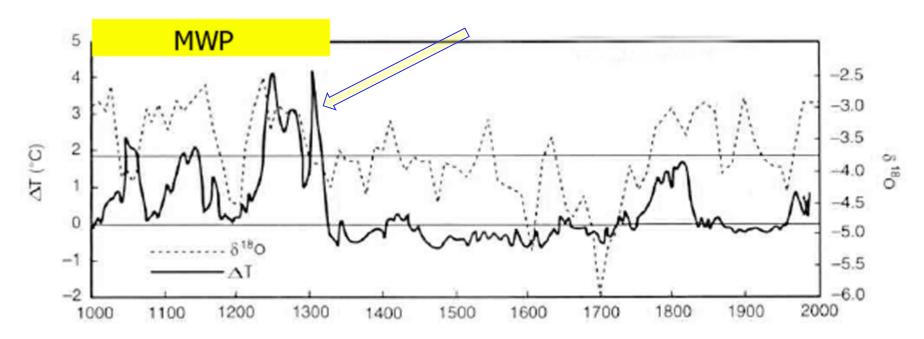


Makapansgat Valley proxy temperature reconstruction adapted from Tyson et al. MWP is represented by the yellow highlighted bar at the top of the graph.

#### **Description**

Maximum annual air temperatures in the vicinity of Cold Air Cave (24°1'S, 29°11'E) in the Makapansgat Valley of South Africa were inferred from a relationship between color variations in banded growth-layer laminations of a well-dated stalagmite and the air temperature of a surrounding 49-station climatological network...

The Medieval Warm Period (AD 1000-1325) was as much as 3-4°C warmer than the Current Warm Period (AD 1961-1990 mean).



Makapansgat Valley proxy temperature reconstruction adapted from Tyson et al. MWP is represented by the yellow highlighted bar at the top of the graph.

The rapid collapse in temperatures noted in the South Africa proxy is the same time that the Tyrrhenian Sea Level fell precipitously and ships of Pisa could no longer reach their Home Port on the Arno River.

Hubert Lamb is clear that he thought the MWP ended abruptly in around 1300 AD: "The change which broke the medieval warm regime must have been devastatingly sudden." (P177. *Climate, History and the Modern World*.

https://wattsupwiththat.com/2013/12/02/history-falsifies-climate-alarmist-sea-level-claims/



## History falsifies climate alarmist sea level claims

Advertisements

Anthony Watts / December 2, 2013

Seas have been rising and falling for thousands of years – without help from the EPA or IPCC

#### Guest essay by Robert W. Endlich

Sea levels are rising rapidly! Coastal communities are becoming more vulnerable to storms and storm surges! Small island nations are going to disappear beneath the waves!

Climate alarmists have been making these claims for years, trying to tie them to events like "Superstorm" Sandy, which was below Category 1 hurricane strength when it struck New York City in October 2012, and Typhoon Haiyan, which plowed into the low-lying central Philippines in November 2013.

## Introduction

Reference, my 2012 post:

https://wattsupwiththat.com/2013/12/02/history-falsifies-climate-alarmist-sea-level-claims/

We start in the Biblical World of 3000 BC,

An expanded view of Sea Level from history,

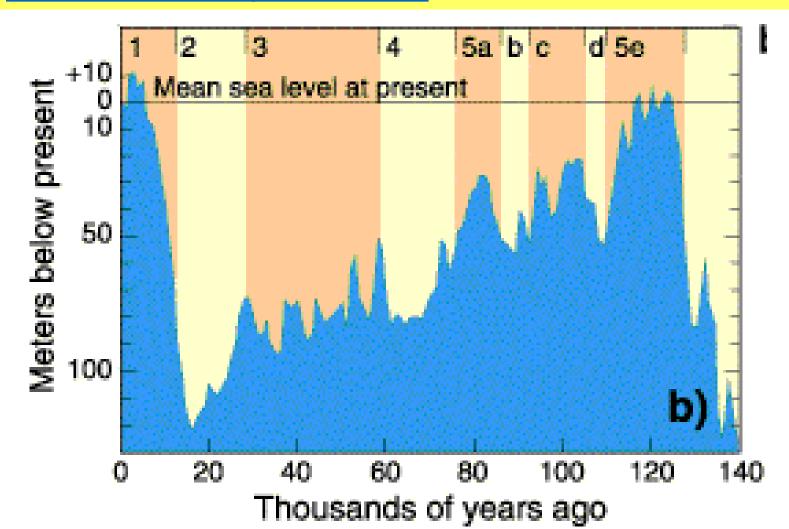
References from Geologic History of the Holocene

New claims of Sea Level acceleration in the tropical Pacific....

..Darwin's notes and report based on his observations from the *Beagle* in 1842

Late Quaternary Sea Level History shows sea level higher within the Holocene ...and a drop in Sea Level during the Little Ice Age within the past 1000 years.

http://en.wikipedia.org/wiki/Sea\_level



## Sea level references throughout history:

Especially in Europe, towns and civic groups celebrate and advertise local history....often having references to sea level...

sea's influences on local historical events, locations.

Historic event timeline in Europe extends back to the Roman Warm Period and the Medieval Warm Periods, before the Little Ice Age

Modern, post-Little Ice Age sea levels have not yet reached the heights reached in the Roman Warm Period and the Medieval Warm Period.

Our historic tour of the Middle East (Iraq) and Europe:

Modern Italy, Turkey, and England, France

https://wattsupwiththat.com/2013/12/02/history-falsifies-climate-alarmist-sea-level-claims/

Sea level changes over relatively recent geologic and human history demonstrate that alarmist claims of human cause do not withstand scrutiny.

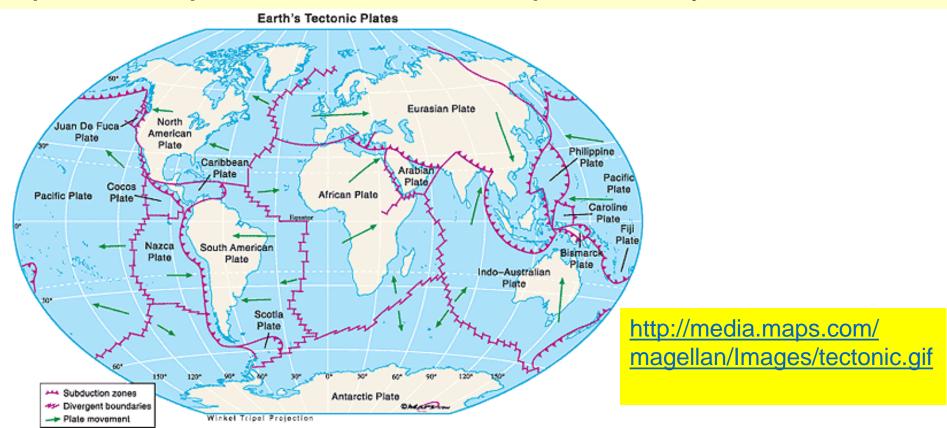
After the last ice age, sea levels in the Holocene rose significantly, fell during the Little Ice Age, and have been rising again since the LIA ended around 1850.

In fact, Roman Empire and Medieval port cities are now miles from the Mediterranean, because sea levels actually fell during the Little Ice Age. Historical data from Europe show sea levels were higher in the Roman and Medieval Warm Periods than sea levels today:

Why use Europe? Written records, and artifacts from the Roman Empire and the Medieval Warm periods are dated by history.

Much of Europe is sedimentary rock and unconsolidated sediments,

Less likely to be affected by tectonic forces than say, for instance Japan, which is part of an Island Arc and on a plate boundary, or Guatemala.



How the next section is organized:

Sea levels higher than today in the recent past

Present country

Within that country, from oldest to youngest

Historic sea levels higher than today:

Iraq

Greece

**Turkey** 

**Italy** 

England

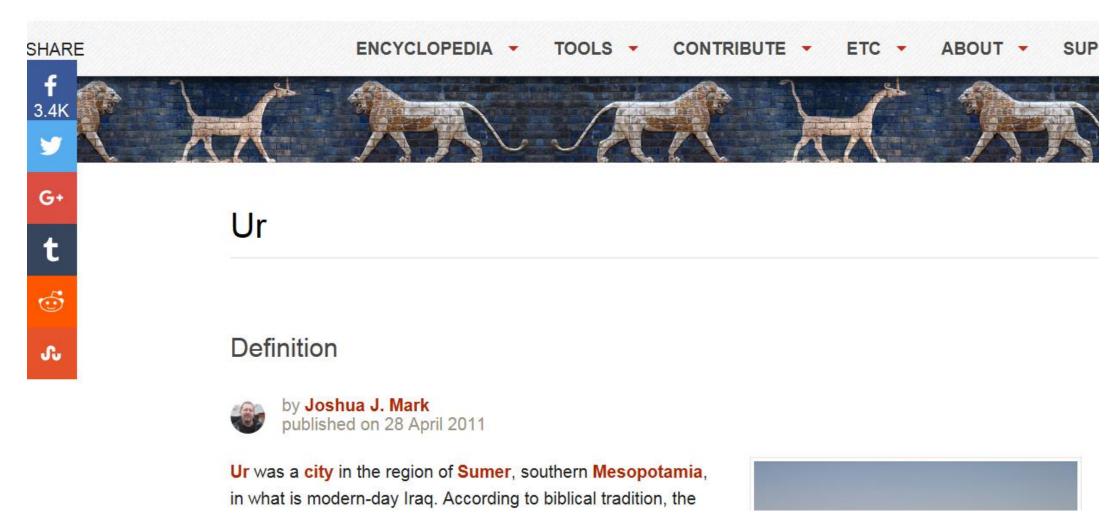
France

Iraq

### http://www.ancient.eu/ur/



Search...







From The Ancient History Encyclopedia: <a href="http://www.ancient.eu/ur/">http://www.ancient.eu/ur/</a>

"Whatever its biblical connections may have been,

Ur was a significant port city on the Persian Gulf which began, most likely, as a small village in the Ubaid Period of Mesopotamian history (5000-4100 BC) and was an established city by 3800 BC continually inhabited until 450 BC."

http://www.archatlas.org/SitesFromSatellites/sites.php?name=uruk-ur



"... a landscape now radically different from the fourth and third millennia BC... Uruk and Ur are far from the present head of the Persian Gulf; ... Ur was a sea-port and Uruk was situated on a major riverine artery.

Sea Level was a lot higher at the time of Ur's prominence, 3000 BC.

http://www.archatlas.org/SitesFromSatellites/sites.php?name=uruk-ur



The present-day setting of Ur, next to the Tallil air-base (rectangle) and its supply-roads. Landsat TM imagery provided by NASA.

The elevation of Ali Air Base (Tallil) is 13 Ft MSL <a href="https://en.wikipedia.org/wiki/Ali\_Air\_Base">https://en.wikipedia.org/wiki/Ali\_Air\_Base</a>

# Greece

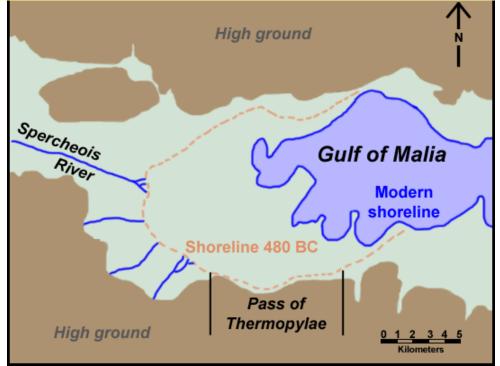
## https://en.wikipedia.org/wiki/Battle\_of\_Thermopylae Thermopylae: 480 BC

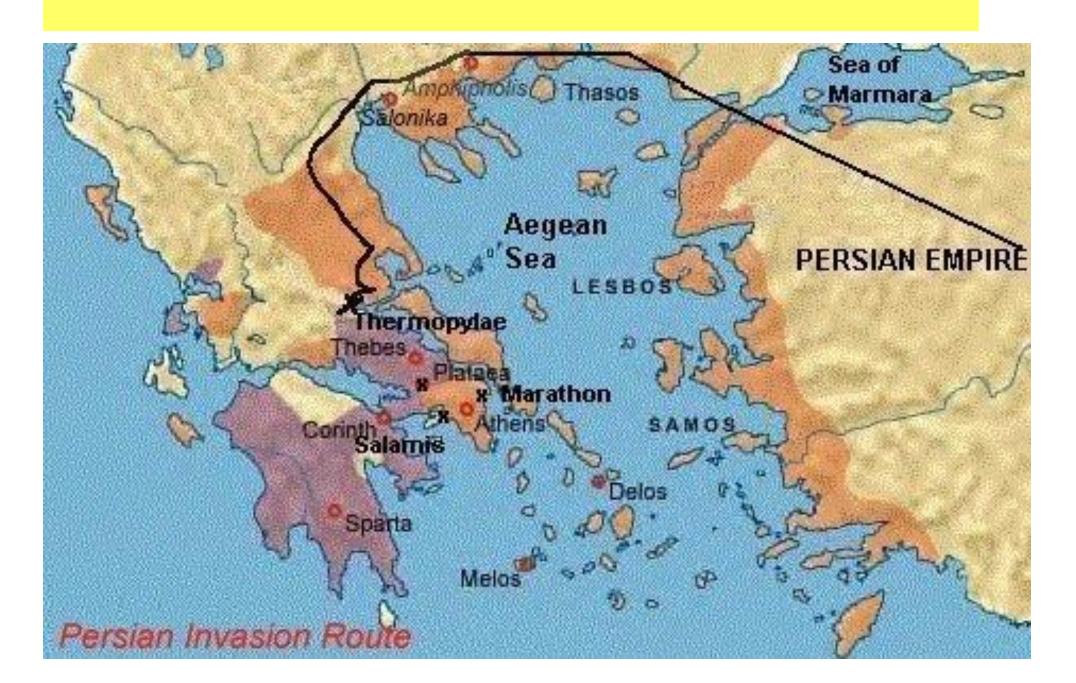
**Thermopylae** ("hot gates") is a place in <u>Greece</u> where a narrow coastal passage existed in <u>antiquity</u>. It derives its name from its <u>hot sulphur springs</u>...

Thermopylae is world-famous for <u>the battle</u> that took place here between the <u>Greek</u> forces including the <u>Spartans</u> and the <u>Persian</u> forces...

This passage from north to south along the east coast of the <u>Balkan peninsula</u> requires use of the pass, and for this reason Thermopylae has been the site of several battles.





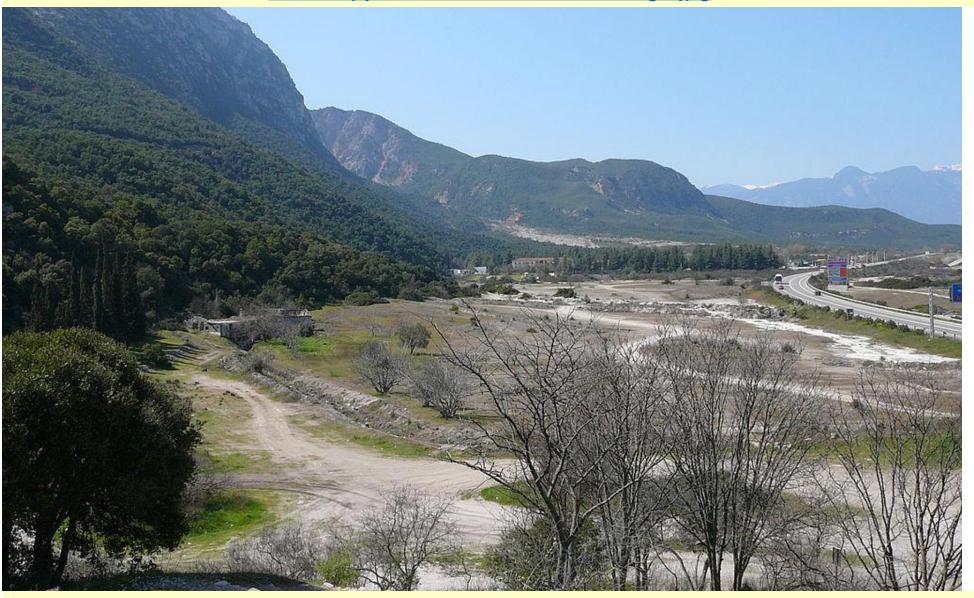




http://earlyworldhistory.blogspot.com/2012/02/persian-invasions.html

... Spartans sent their famed hoplite infantry to meet the advance of the Persians at the pass of Thermopylae. They withstood the continual Persian onslaught, aided by the narrow ground, which limited the number of Persian troops able to attack at one time...

## https://en.wikipedia.org/wiki/Battle\_of\_Thermopylae#/media/File: Thermopylae\_ancient\_coastline\_large.jpg



View of the Thermopylae pass at the area of the Phocian Wall. In ancient times the coastline was even closer to the mountain than where the modern road lies.

# Turkey





http://en.wikipedia.org/wiki/Ephesus



Blue Star is Ephesus; yellow arrow points to Patara, next slides.



From Wikipedia, the free encyclopedia

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**Patara** (Lycian: Pttara), later renamed **Arsinoe** (Greek: Ἀρσινόη), was a flourishing maritime and commercial city on the south-west coast of Lycia on the Mediterranean coast of Turkey near the modern small town of Gelemiş, in Antalya Province. It is the birthplace of St. Nicholas, who lived most of his life in the nearby town of Myra (Demre).

#### History

Possessing a natural harbour, Patara was said to have been founded by <a href="Patarus">Patarus</a>, a son of <a href="Apollo">Apollo</a>. [1]

...Ancient writers mentioned Patara as one of the principal cities of Lycia. 6

It was Lycia's primary seaport, and a leading city of the Lycian League, having 3 votes, the maximum.

Patara was formally annexed by the Roman Empire in 43 AD and attached to Pamphylia.

Patara is mentioned in the <u>New Testament<sup>[7]</sup></u> as the place where <u>Paul of Tarsus</u> and <u>Luke</u> changed ships.

#### **Patara**



A picture of some of the ruins in Patara. Note a city gate at the lower left corner and the theatre set on the hillside.



Shown within Turkey

#### https://en.wikipedia.org/wiki/Patara, Lycia

#### Ruins

The name Patara is still attached to the numerous ruins of the city.

... The town walls surrounded an area of considerable extent; they may easily be traced as well as the situation of a castle which commanded the harbour, and of several towers which flanked the walls.



A view of the partially restored main street of Patara



A view back across the city ruins from the top of the theatre

... The situation of the harbor is still apparent, but it is a swamp, choked up with sand and bushes. (Beaufort, *Karmania*, pp. 2, 6.)

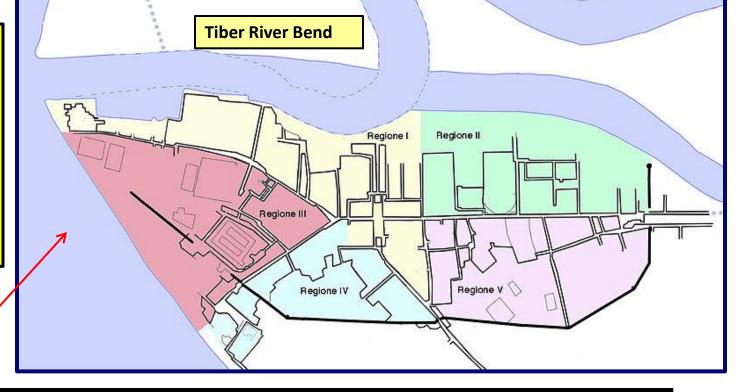
Therefore, Sea Level was higher in 190 AD.

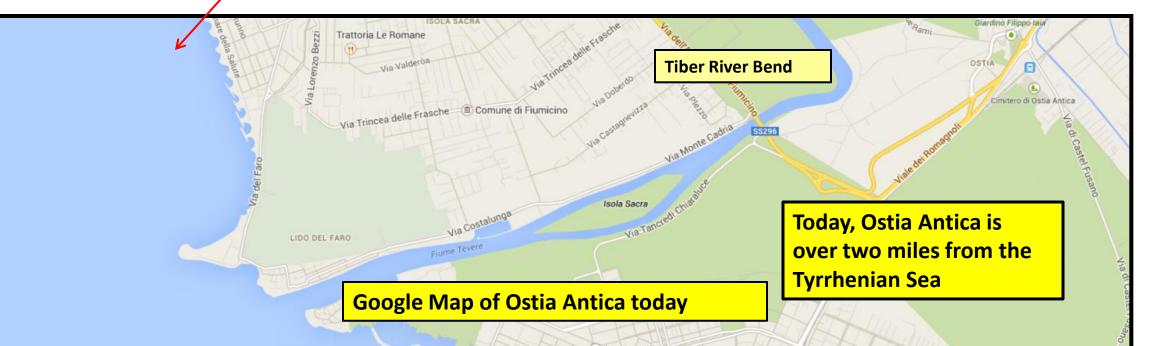
Italy

### **History**

Sea Level Lessons from Ostia Antica, a port city of ancient Rome

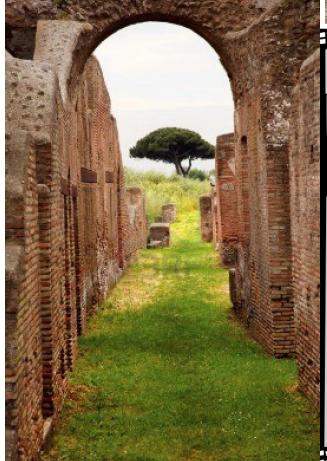
**Tyrrhenian Sea** 

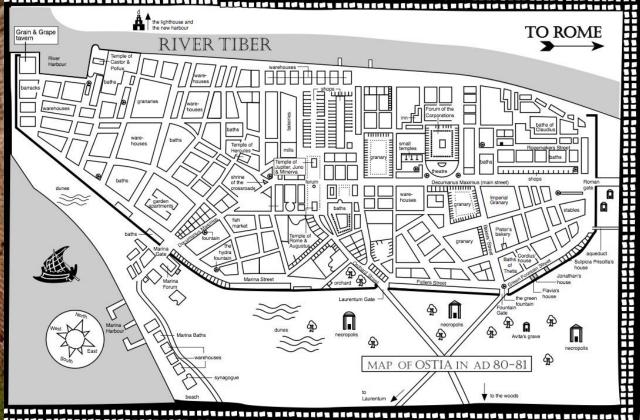


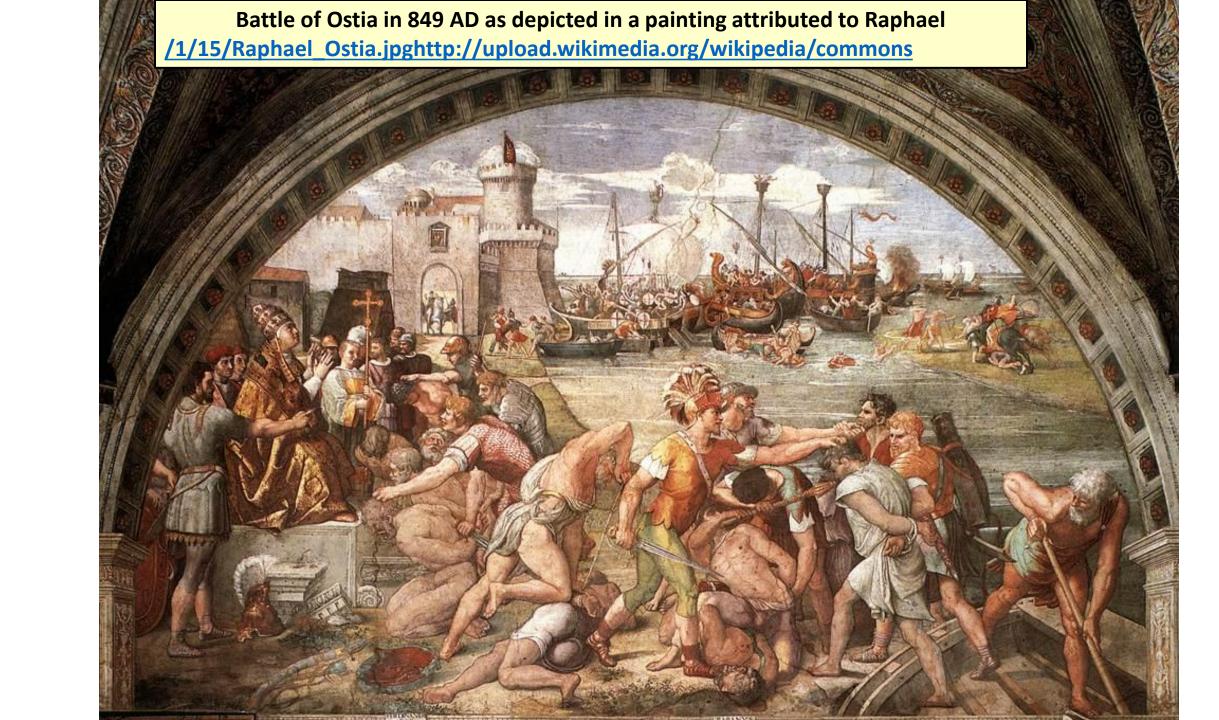


History
Sea Level Lessons from
Ostia Antica,
port city of
ancient Rome









#### Ostia Antica Video Tiber River Bend is at the 9 Second Mark.

https://www.youtube.com/watch?v=7rPHHyB7mpU



#### https://en.wikipedia.org/wiki/Portus



Article Talk

Read

#### **Portus**

From Wikipedia, the free encyclopedia

**Portus** was a large artificial <u>harbour</u> of <u>Ancient Rome</u>. Sited on the north bank of the mouth of the <u>Tiber</u>, on the <u>Tyrrhenian coast</u>, it was established by <u>Claudius</u> and enlarged by <u>Trajan</u> to supplement the nearby port of <u>Ostia</u>. [1]

Rome's original harbor was Ostia. Claudius constructed the first harbor on the Portus site, 4 km (2.5 mi) north of Ostia...

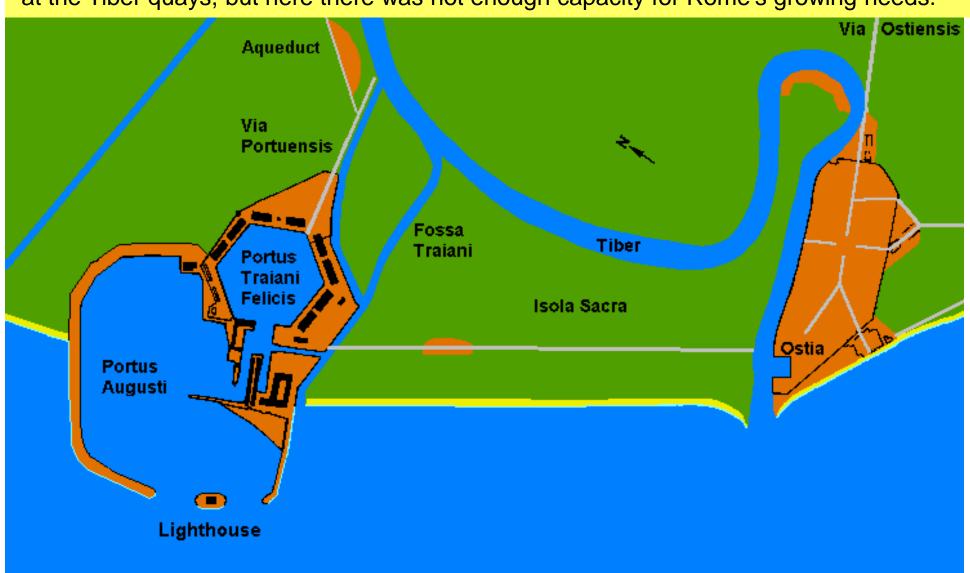
In AD 103 <u>Trajan</u> constructed another harbor farther inland—a hexagonal basin, enclosing an area of 39 hectares (97 acres), and communicating by canals with the harbor of Claudius, with the Tiber directly, and with the sea....

Portus was the main <u>port</u> of ancient Rome for more than 500 years and provided a conduit for everything from glass, ceramics, marble and slaves to wild animals caught in <u>Africa</u> and shipped to Rome for spectacles in the Colosseum."

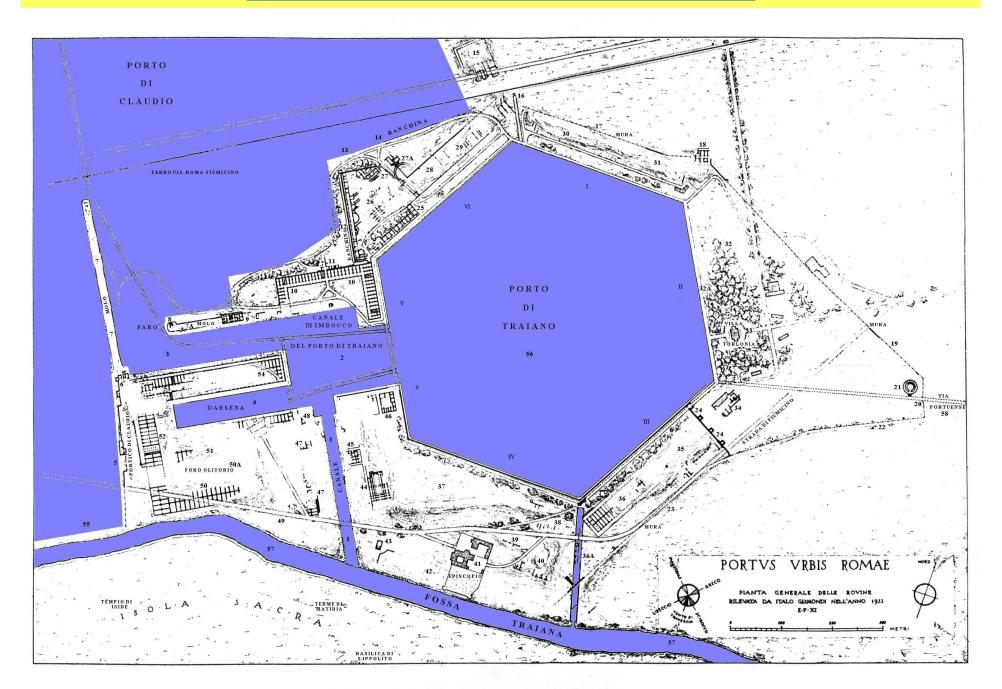
[4]

#### http://www.ostia-antica.org/portus/claudius.htm The harbor of Claudius

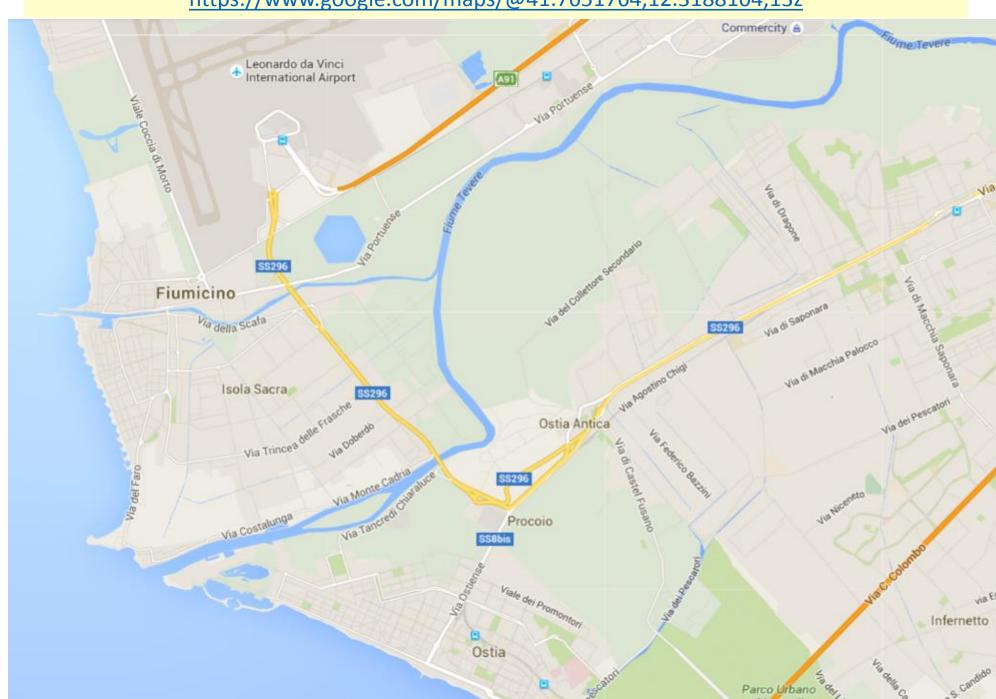
The river harbour of Ostia had several limitations. Large ships could not enter it, because there was a sand bar in front of the mouth. Therefore, goods that arrived in large ships had to be transferred to smaller ships on the sea. Shallow-draught vessels could moor at the Tiber quays, but here there was not enough capacity for Rome's growing needs.



#### http://www.ostia-antica.org/portus/plan-trajan.htm



#### https://www.google.com/maps/@41.7651764,12.3188104,13z



Aerial view Portus' hexagonal artificial harbor, built by Emperor Trajan, alongside Tiber. <a href="http://upload.wikimedia.org/wikipedia/commons/6/6d/Fiumicino\_03\_%28RaBoe%29.jpg">http://upload.wikimedia.org/wikipedia/commons/6/6d/Fiumicino\_03\_%28RaBoe%29.jpg</a>

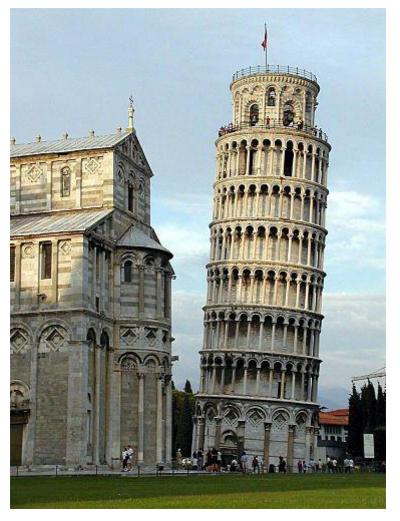


View from west, from over the Tyrrhenian Sea. Rome's Fiumicino Airport to the left. Port of Ostia Antica is off the frame to the right, a couple of miles south.

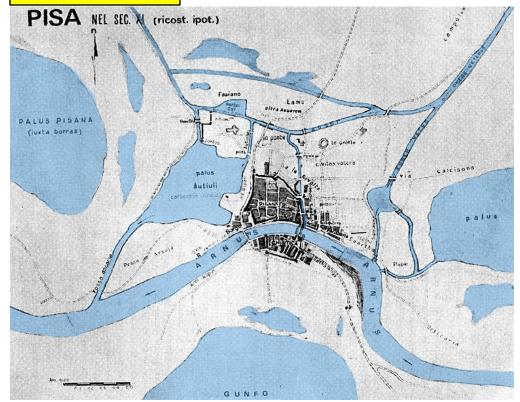
#### Pisa

What can Pisa tell us about sea level change?

http://en.wikipedia.org/wiki/Pisa



Fifth century,
Eleventh
Century maps,
Pisa.



PISAE (ncost ipotet at v sec.)

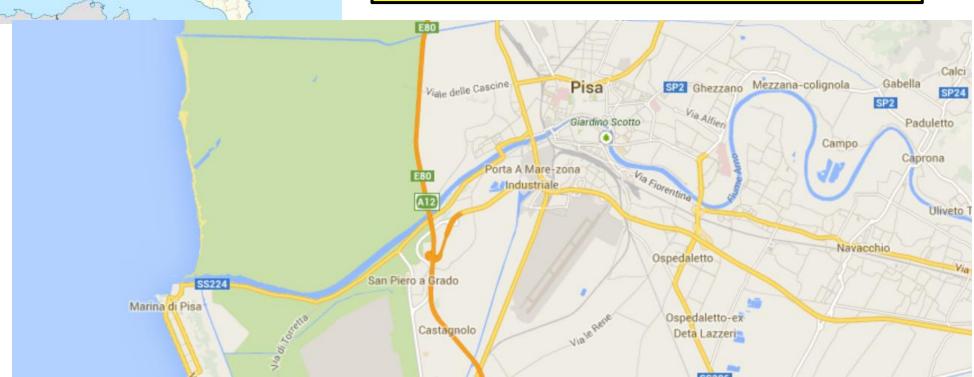


#### Pisa

The history of Pisa: ... after 1300 AD ships were unable to reach the port of Pisa, causing the loss of Pisa's economic engine.

Presence of meanders of the Arno River upstream of Pisa shows me that sea level was constant for a long period and then fell, beginning around 1300, beginning of LIA.

There are no meanders downstream of Pisa.



Wikipedia mentions that the reason why Pisa declined is because the River Arno "silted up in the 1300s.,"

clearly not true, observed by looking at the landforms.

Examples of rivers silting up because they reach grade, and the rivers shift course over time, forming a River Delta.

Examples include the Mississippi delta of Louisiana,

but in Europe, the Ebro River in Spain is a textbook example.

### http://en.wikipedia.org/wiki/File:Valle\_del\_Ebro.jpg



#### http://en.wikipedia.org/wiki/File:EbroRiverDelta\_ISS009-E-09985.jpg



Textbook example
Of a river delta,

Triangular shape, Many traces of meanders.



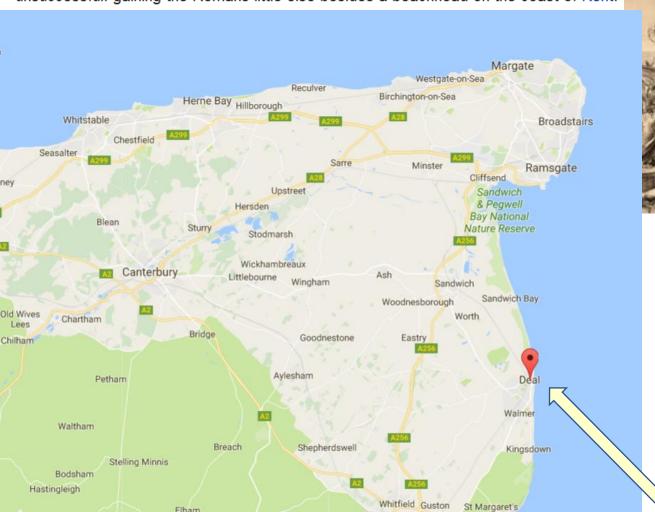
# England

From Wikipedia, the free encyclopedia

For the conquest begun in AD 43, see Roman conquest of Britain.

In the course of his Gallic Wars, Julius Caesar invaded Britain twice: in 55 and 54 BC.[1] The first invasion, in late summer, was

unsuccessful: gaining the Romans little else besides a beachhead on the coast of Kent.



#### http://www.athenapub.com/caesar1.htm

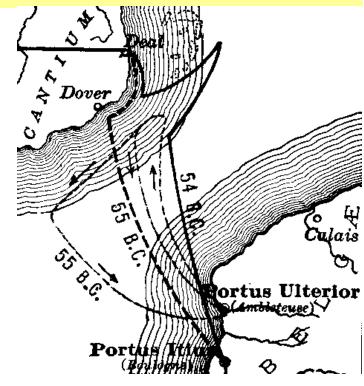


Deal Beach in Kent.

This shoreline near Walmer Castle is probably the area where Julius Caesar and his troops landed during the two Roman excursions to Britain of 55 and 54 BC.

In the distance, the cliffs of Dover may be seen, to the south.

The beach is made up of small stones, or shingles.



# Deal, Kent

From Wikipedia, the free encyclopedia

Not to be confused with Seal, Kent.

**Deal** is a town in Kent, England which lies on the English Channel, eight miles north-east of Dover and eight miles south of Ramsgate. It is a former fishing, mining and garrison town. Close to Deal is Walmer, a possible location for Julius Caesar's first arrival in Britain.

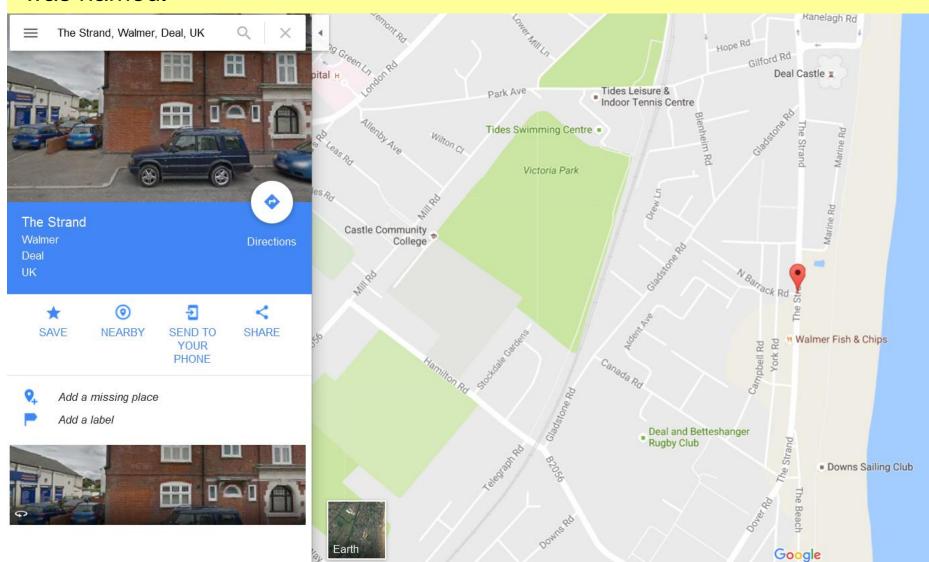


#### https://www.google.com/maps/place/Walmer,+UK



The Strand, Walmer, Deal, Kent, UK. The Strand is now over 500 ft from the ocean but, The Strand is a name for the land bordering water, a beach.

Sea level was higher when Julius Caesar landed here, and when this street was named.



# http://www.waymarking.com/waymarks/WMEB8B\_Landing\_Site\_of\_First\_Roman\_Invasion\_of\_Britain\_Walmer\_Kent\_UK



Landing Site of First Roman Invasion of Britain - Walmer, Kent, UK.

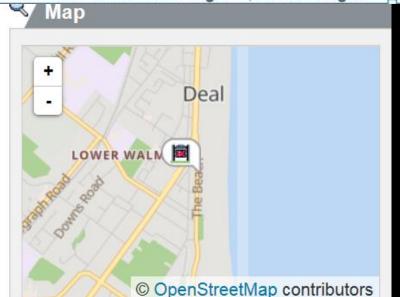
in UK Historical Markers

Posted by: & MeerRescue

N 51° 12.668 E 001° 24.178 31U E 388449 N 5674515

Quick Description: A commemoration stone on Walmer Green, The Strand, Walmer, Kent, commemorating the landing site of the first Roman Invasion of Britain by Julius Caesar in 55BC.

Location: South East England, United Kingdom





Article Talk

# Site of the Claudian invasion of Britain

From Wikipedia, the free encyclopedia

The site of the Claudian invasion of Britain in AD 43 is a matter of some controversy.

Cassius Dio's Roman History, written in the early 3rd century.

Three landing sites in Kent:

Lympne furthest west (the Legio II Augusta under Vespasian),

Dover in the centre (the XXValeria Victrix under an unknown commander) and Richborough in the east (the IX Hispana and XIV Gemina under the overall command of Plautius).

The three divisions would have then advanced from the coast and met at the River Medway.



Article Talk

# Site of the Claudian invasion of Britain

From Wikipedia, the free encyclopedia

The site of the Claudian invasion of Britain in AD 43 is a matter of some controversy.

... "Richborough had a large natural harbor (long since silted up) which would have provided a suitable anchorage for the landing (though its capacity to hold more than a small part of the fleet has been questioned), and there are archaeological remains of earthworks, interpreted as defensive ditches, dug to protect the anchorage, dating to the period of the invasion... "

## Richborough Castle

From Wikipedia, the free encyclopedia

Richborough Castle contains the ruins of a Roman Saxon Shore fort, collectively known as Richborough Fort or Richborough Roman Fort. It is situated in Richborough near Sandwich, Kent, in the United Kingdom.

Rutupiae or Portus Ritupis was founded by the Romans after their invasion of Britain in AD 43. Because of its position near the mouth of the Stour, Rutupiae was the major British port under the Romans and the starting point for their equivalent of Watling Street. Additional routes connected Durovernum (Canterbury) with further ports at Dubris (Dover), Lemanis (Lympne), and Regulbium (Reculver). Earth fortifications were first dug on the site in the 1st century, probably was as a storage depot and bridgehead for the Roman army. This transformed into a civilian and commercial town, which was later replaced by a Saxon Shore fort around the year 277. The later fort is believed to have been constructed by the rebel Carausius.<sup>[1]</sup> The site is now under the care of English Heritage.

#### Contents [hide]

- 1 History
  - 1.1 Roman Invasion
  - 1.2 Civilian town
  - 1.3 Triumphal arch
  - 1.4 Cayon Chara fort

#### Rutupiæ

Coordinates: \$\infty\$ 51.294\circ N 1.332\circ E



Richborough Roman Fort



Rutupiæ shown within Kent

OS grid reference

TR324602

Coordinates

@ 51.294°N 1.332°E

# Dig uncovers Roman invasion coast

An archaeological dig at a Kent fort has uncovered the coastline at the time of the Roman invasion of Britain in 43AD - <u>two miles from today's shore.</u>

The team was excavating a 295ft (90m) stretch of collapsed Roman wall, when they found a small medieval dock.

English Heritage archaeologist Tony Wilmott said they...found a "hard surface", in a water-filled trench, which was the Roman beach.



The medieval dock was found next to a fallen Roman wall

In the Roman era, Richborough Roman Fort overlooked a sheltered lagoon, where the invading Roman forces first landed

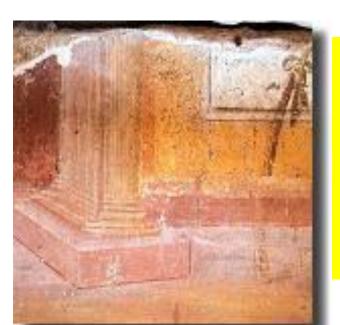
# https://en.wikipedia.org/wiki/Dubris

Dubris, also known as Portus Dubris and Dubrae, was a port in Roman Britain on the site of present-day Dover, Kent, England.

As the closest point to continental Europe and the site of the estuary of the Dour, the site chosen for Dover was ideal for a cross-channel port



Roman Lighthouse at Dover Castle



Mural and wall painting from a Roman Manso, a hostel for Roman government officials, built ~200AD, from Ruins of the Roman Painted House in Dover, discovered during construction of the York Street Bypass in the 1970s.





Portus Lemanis shown within Kent

OS grid reference

TR117342



Remains of Portus Lemanis

There is an inscription On an altar at Portus Lemanis dated from The first third of the Second Century AD, <~133AD> by a Lucius Aufidius Pantera

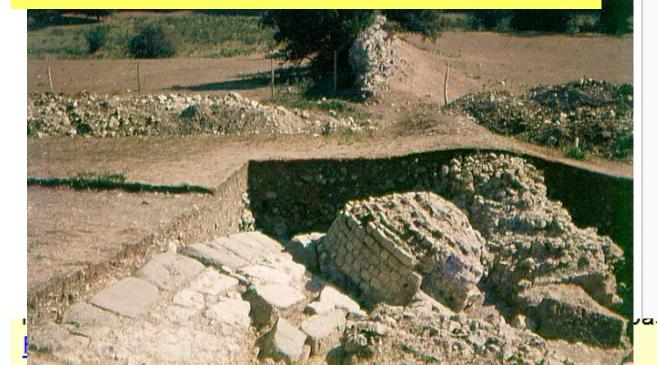
Read Edit

#### **Portus Lemanis**

From Wikipedia, the free encyclopedia

Portus Lemanis, also known as Lemanae, was the Latin name of an ancient Roman fort, settlement and port in southern Kent. The modern village of Lympne derives its name from the ancient port.

Archaeological excavations of the east gate of Portus Lemanis in 1976



# **Portus Lemanis** Remains of Portus Lemanis Lemanis Portus Lemanis shown within Kent

Coordinates: \$\infty\$ 51°4'12"N 1°1'8"E



# Notitia Dignitatum

From Wikipedia, the free encyclopedia

Notitia Dignatatum: C 420 AD

The *Notitia Dignitatum* (Latin for "The List of Offices") is a unique document of the late Roman Empire. One of the very few surviving documents of Roman government, it details the administrative organization of the Eastern and Western Empires, listing several thousand offices from the imperial court down to the provincial level, diplomatic missions and army units. It is usually considered to be up to date for the Western Roman Empire in the 420s and for the Eastern or Byzantine Empire in the 390s. However, no absolute date is given in the text itself and

https://en.wikipedia.org/wiki/Notitia\_Dignitatum

omissions complicate deriving an absolute date from its content.

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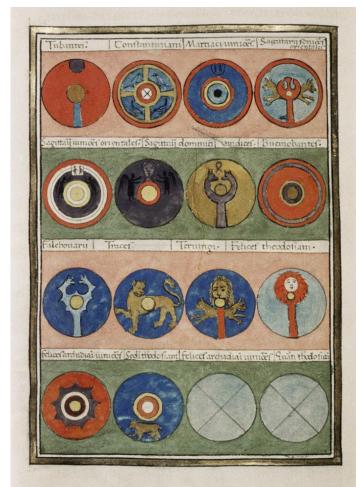
Community portal

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#### Contents [hide]

- 1 Copies of the manuscript
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- 3 Interpretation
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- 5 See also
- 6 Citations
- 7 Sources and references

Page from a medieval copy of the *Notitia Dignitatum* commissioned in 1436 by Pietro Donato, depicting shields of *Magister Militum Praesentalis II*, a late Roman register of military commands



# From Notitia Dignatum: Saxon Sea Forts

Latin Name English Name

Branodunum Brancaster

Gariannonum Burgh

Othona Bradwell-on-Sea

Portus Adurni Portchester

Rutupiae Richborough Castle

Dubris Dover

Portus Lemanis Lympne

Anderitum Pevensey

#### https://en.wikipedia.org/wiki/Saxon\_Shore#/media/File:Litus\_Saxonicum.png





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Read Edit

https://en.wikipedia.org/wiki/Branodunum

# Branodunum

From Wikipedia, the free encyclopedia

Branodunum was the name of an ancient Roman fort to the east of the modern English village of Brancaster in Norfolk. Its Roman name derives from the local Celtic language, and may mean "fort of the raven".

#### History [edit]

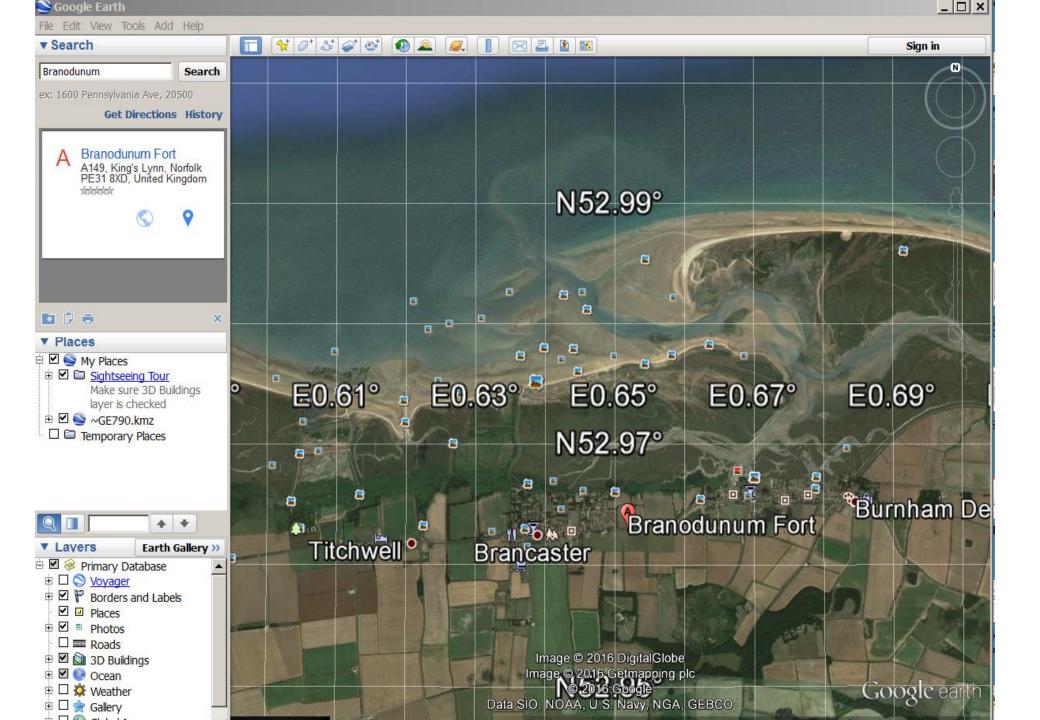
The fort, built in the 230s, became later part of the Saxon Shore fortification system. It was built to guard the Wash approaches and is of a typical rectangular castrum layout. [1] According to the 4th-century document Notitia Dignitatum, the fort was garrisoned by the Equites Dalmatae Brandodunenses ("Dalmatian cavalry of Bran[d]odunum"),[2] although a tile found on the site stamped Cohors I

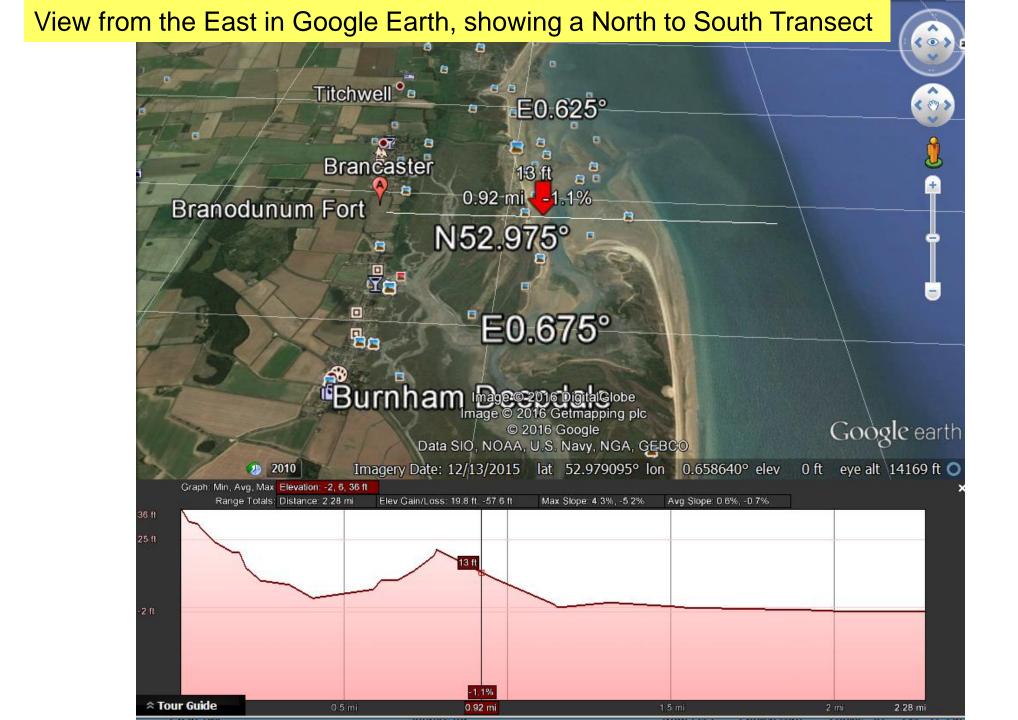
In Roman times, the fort's northern wall lay directly on the seashore, which served as a harbor.

Since then, the shoreline has receded, and the fort now lies inland.



The fort was of a rectangular shape with rounded corners... http://www.culture24.org.uk/history-and-heritage/archaeology/art396336







# Main page Contents Featured content Current events

## https://en.wikipedia.org/wiki/Caister\_Roman\_Site

#### Caister Roman Site

From Wikipedia, the free encyclopedia

Caister Roman Site is a Roman Saxon Shore fort, located in Caister-on-Sea, Norfolk. It was constructed around AD 200 for a unit of the Roman army and navy and occupied until around 370-390 AD.<sup>[1]</sup> This fort was possibly known as Gariannonum, although the single record that describes it as such may also mean the Roman site at Burgh Castle.

At the time of its construction, the site of the fort would have been on the north side of an estuary, with a pebbled street from the fort's south gate leading a short distance to a harbour or docks.

In around AD 260 a fort at <u>Burgh Castle</u> was constructed on the opposite side of the estuary, with both forts probably serving to protect Roman shipping in the estuary.

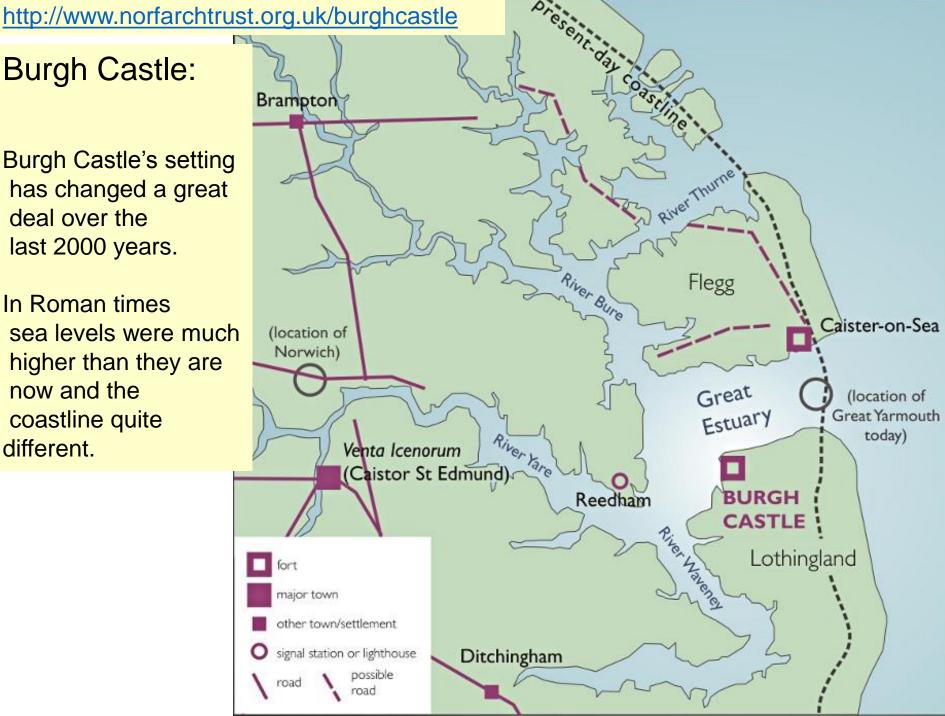
At the time of its construction, the site of the fort would have been on the north side of an estuary, at the mouths of the Rivers Ant, Bure, Yare, and Waveney.

Today however, the northward extension of the <u>Yarmouth</u> sandbank has meant that this shore fort now lies some distance inland.

# **Burgh Castle:**

Burgh Castle's setting has changed a great deal over the last 2000 years.

In Roman times sea levels were much higher than they are now and the coastline quite different.



#### http://www.norfarchtrust.org.uk/burghcastle







THE NORFOLK ARCHAEOLOGICAL TRUST

Burgh Castle

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Binham Priory
Bloodgate Hill fort
Burgh Castle

# **Burgh Castle**

At **Burgh Castle** you can explore the best preserved Roman monument in East Anglia. In fact, this is one of the most impressive Roman buildings to survive anywhere in Britain. The Burgh Castle fort was probably called *Gariannonum* by the Romans. During the 3rd and 4th centuries AD it was one of a chain of 'Forts of the Saxon Shore', sited at intervals around the coast of south-east England. There are other Saxon Shore forts in Norfolk at Caister-on-Sea and Brancaster. The forts protected Britain from attacks by raiders and pirates from across the North Sea, and may also have guarded harbours and merchant shipping.



https://en.wikipedia.org/wiki/Burgh\_Castle Roman\_Site

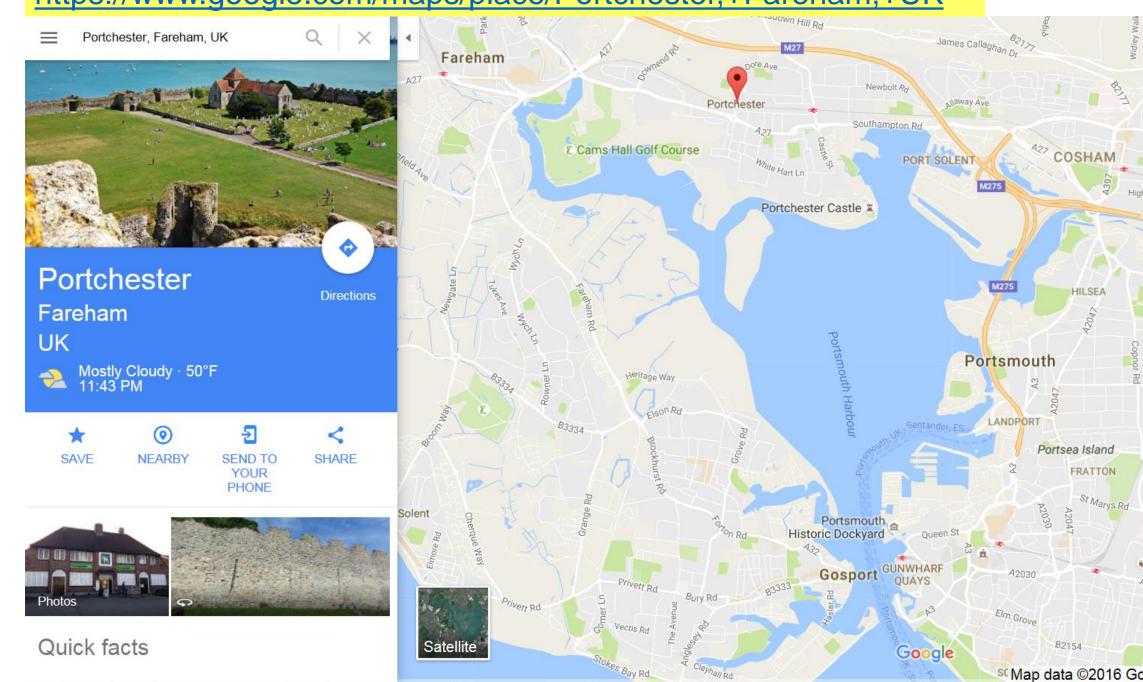




Bastion of Burgh Castle. During the 3rd and 4th centuries AD it was one of a chain of 'Forts of the Saxon Shore', sited at intervals around the coast of south-east England



# https://www.google.com/maps/place/Portchester,+Fareham,+UK



#### Portus Adurni

From Wikipedia, the free encyclopedia

**Portus Adurni** was a Roman fortress in the Roman province of Britannia. Listed in the Notitia Dignitatum, it is generally accepted as having been located at grid reference SU624045 adjoining Portchester in the English county of Hampshire and was later converted into a medieval castle known as Portchester Castle. It is the best preserved Roman fort north of the Alps.[1]

The name *Portus Adurni* appears only in the list of <u>Saxon Shore</u> forts in the 5th century *Notitia Dignitatum*, and the name is usually identified with Portchester, [2]

The <u>fort</u> was built during the 3rd century as part of the <u>Saxon Shore Forts</u> to protect the southern coastline of <u>Britain</u>, possibly from <u>Saxon</u> raiders.

It occupies a commanding position at the head of <u>Portsmouth Harbour</u>.

The fort is square, enclosing an area of 9 acres (36,000 m²) with outer walls 20 feet (6 m) high, 10 feet (3 m) thick, 210 yards (200 m) long and constructed of coursed flint bonded with

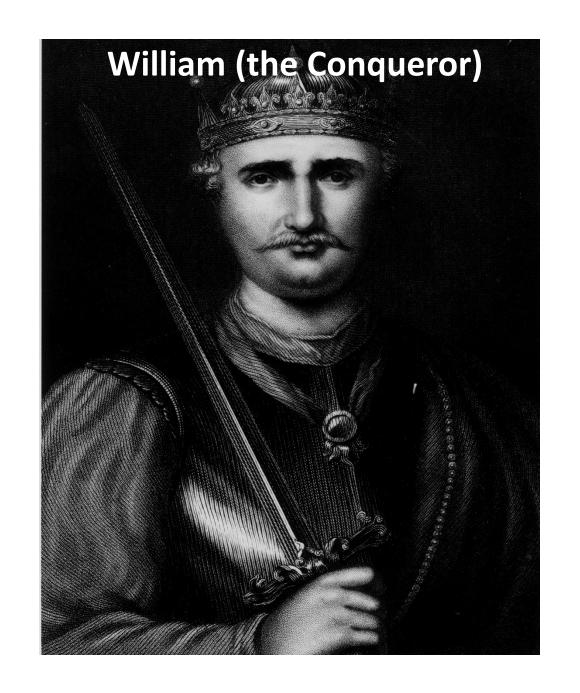
<u>limestone</u> slabs. Square shaped forts became widely used during the 3rd century, being highly practical and defensible.

Portus Adurni has towers all along the walls, as well as towers that angle out at the corners.



# Locations of major events in 1066

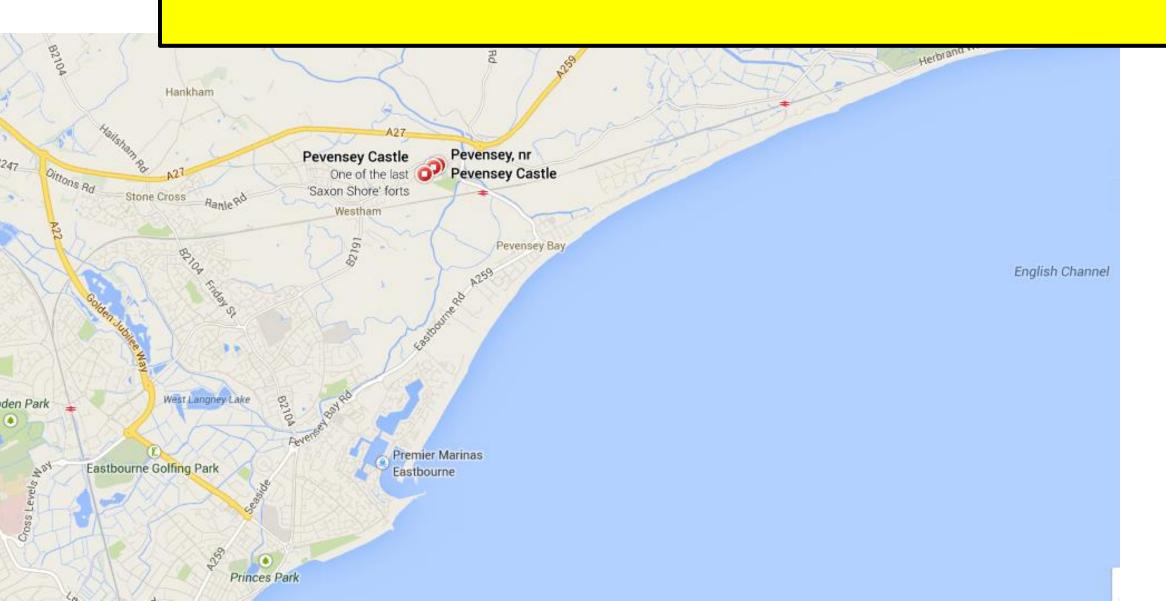




# Pevensey Castle Today

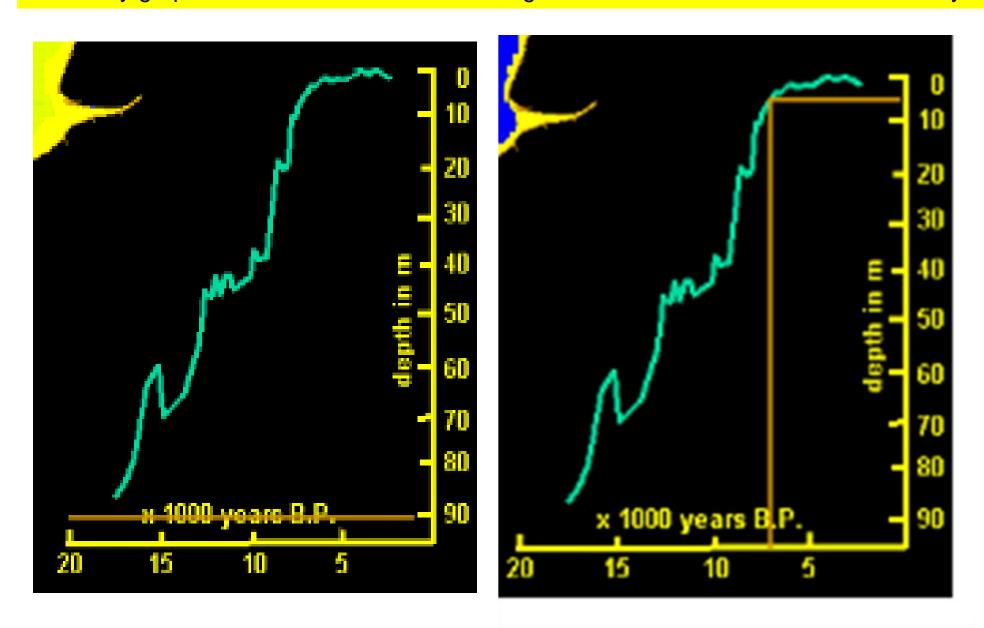


# Today, Pevensey Castle is over a mile inland from the English Channel

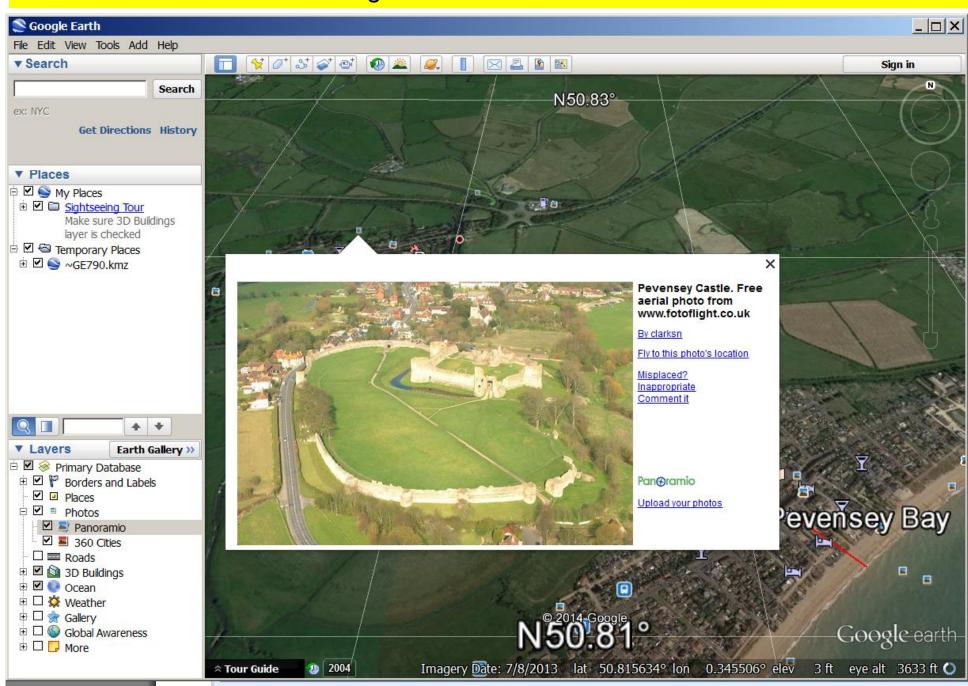


## http://www.pevensey-bay.co.uk/pevensey-levels.html

Pevensey graph shows sea level 1-2 meters higher in Medieval Warm Period than today.



## The Elevation feature on Google Earth shows the castle is 12 ft above sea level



# FRANCE

# https://en.wikipedia.org/wiki/Narbonne



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# Narbonne

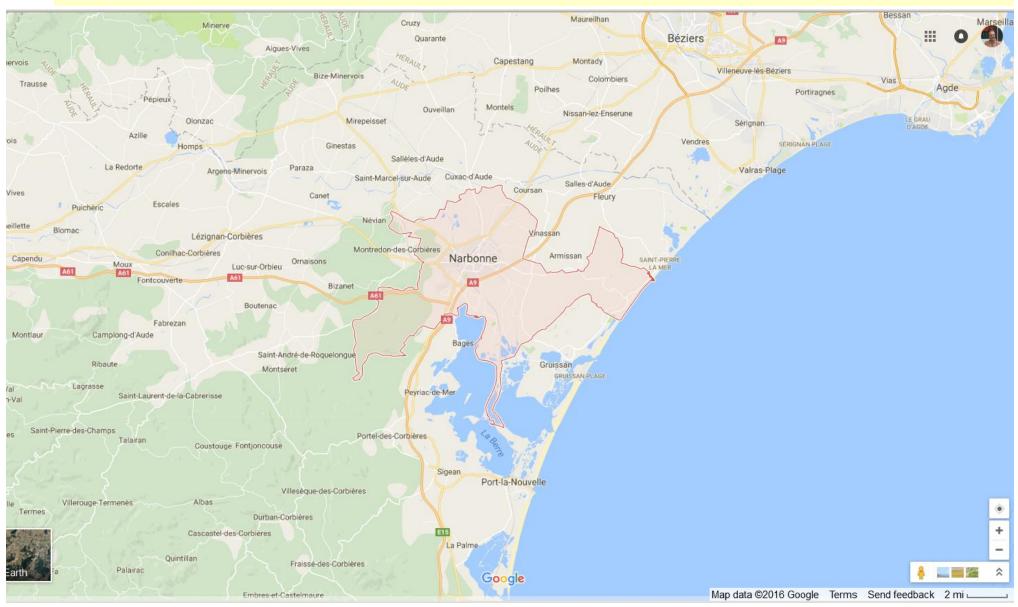
From Wikipedia, the free encyclopedia

Narbonne (French pronunciation: [naʁ.bɔn]; Occitan: *Narbona*, Occitan pronunciation: [nar.ˈbu.no]; Latin: *Narbo*) is a commune in southern France in the Languedoc-Roussillon region. It lies 849 km (528 mi) from Paris in the Aude department, of which it is a sub-prefecture. Once a

Once a prosperous port, and a major city in Roman Times, it is now located about 15 Km or 9.3 Miles from the shores of the Mediterranean Sea

Interaction

Once a prosperous port, and a major city in Roman times, Narbonne is now located about 15 km (9.3 mi) from the shores of the Mediterranean Sea.



When it was a bustling port, distance from Narbonne to the coast was about 5 to 10 km

#### Also in France

http://en.wikipedia.org/wiki/Arles

"Ancient Arles was closer to the sea than it is now and served as a major port.



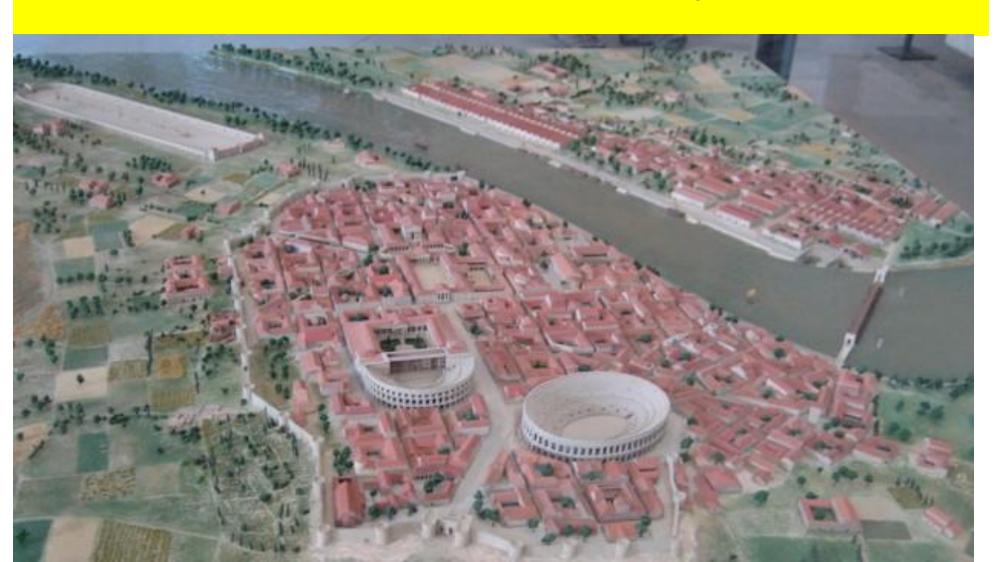
Arles Museum's model of Arelate during Roman times

Photo showing modern Arles with Roman Amphitheater

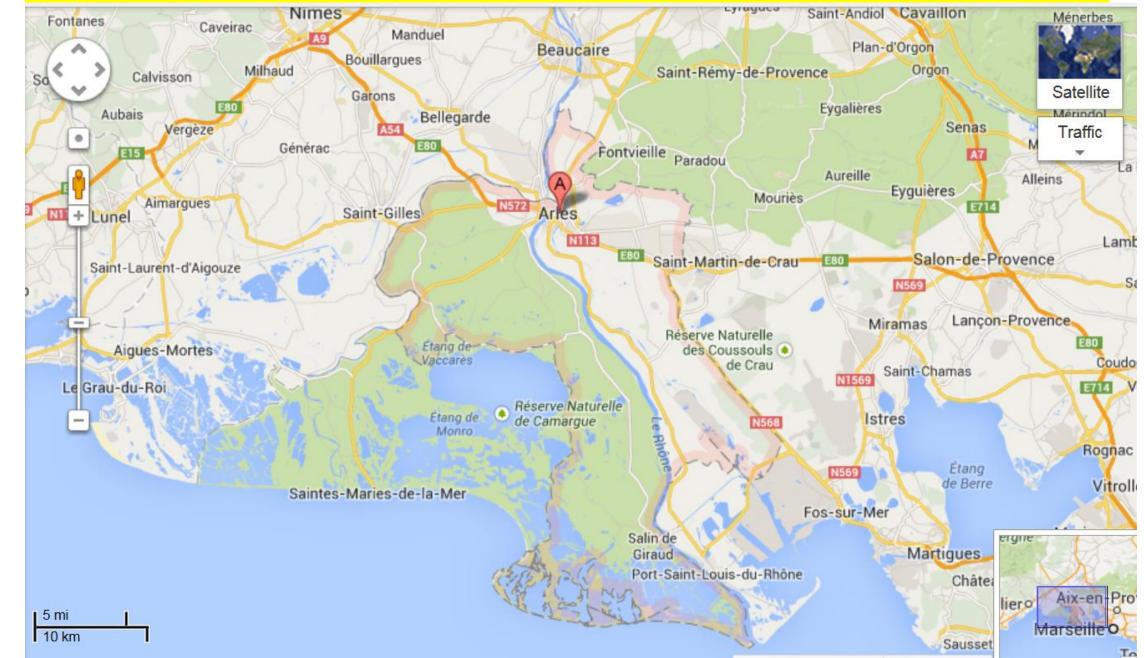
## http://en.wikipedia.org/wiki/Arles

"Ancient Arles was closer to the sea than it is now and served as a major port."

Arles, France, was known as Arelate during Roman Times.



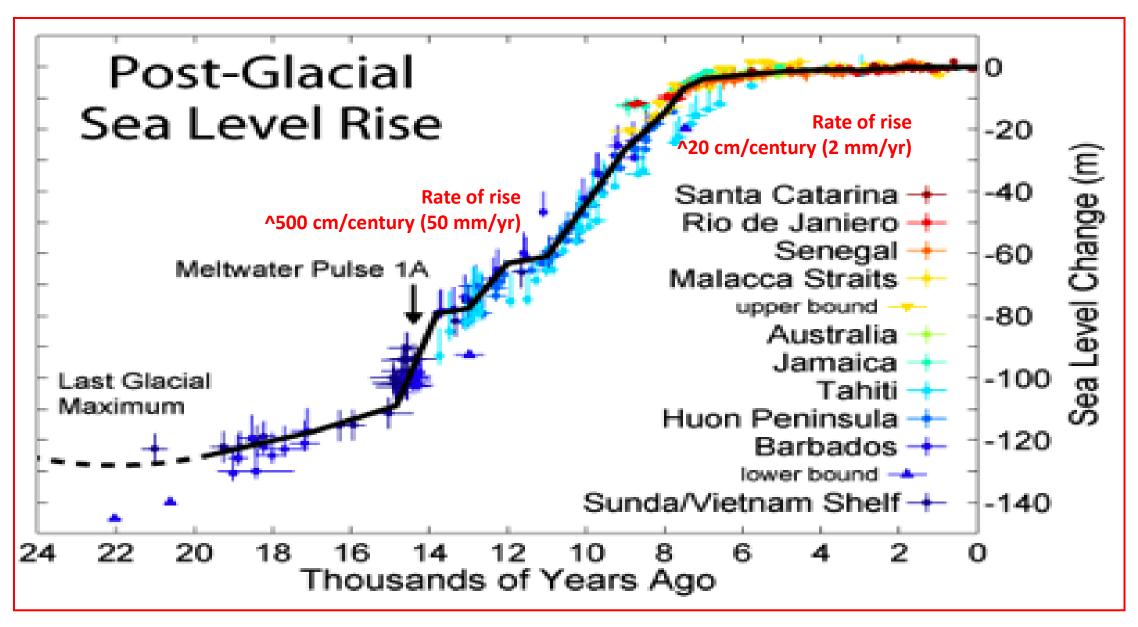
# Google Map of Arles France and development of the Rhone River Delta since Roman Times. Arles is now about 20 km, or 12 miles from the Mediterranean.



# Geology

# Holocene Highstands of Sea Level above present day MSL

highstand: A time during which sea levels are at their highest.



Adapted from Bob Carter's presentation May 2010 Heartland Institute Climate Conference

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# Journal of Sedimentary Research

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GeoRef, Copyright 2008, American Geological Institute.

# Sea-level highstand recorded in Holocene shoreline deposits on Oahu, Hawaii

Charles H. Fletcher and Anthony T. Jones

+ Author Affiliations

#### **Abstract**

Unconsolidated carbonate sands and cobbles on Kapapa Island, windward Oahu, are 1.4-2.8 (+ or - 0.25) m above present mean sea level (msl). Agreeing with Stearns (1935), we interpret the deposit to



Unconsolidated carbonate sands and cobbles on Kapapa Island, windward Oahu, are 1.4-2.8 (+ or - 0.25) m above present mean sea level (msl).

Agreeing with Stearns (1935), we interpret the deposit to be a fossil beach or shoreline representing a highstand of relative sea level during middle to late Holocene time.

#### http://www.soest.hawaii.edu/ericg/kap\_paper.pdf

# Sea level higher than present 3500 years ago on the northern main Hawaiian Islands Eric E. Grossman and Charles H. Fletcher, III

Department of Geology and Geophysics, School of Ocean and Earth Science and Technology University of Hawaii, 1680 East-West Road, Honolulu, Hawaii 96822 <a href="mailto:ericg@soest.hawaii.edu">ericg@soest.hawaii.edu</a>

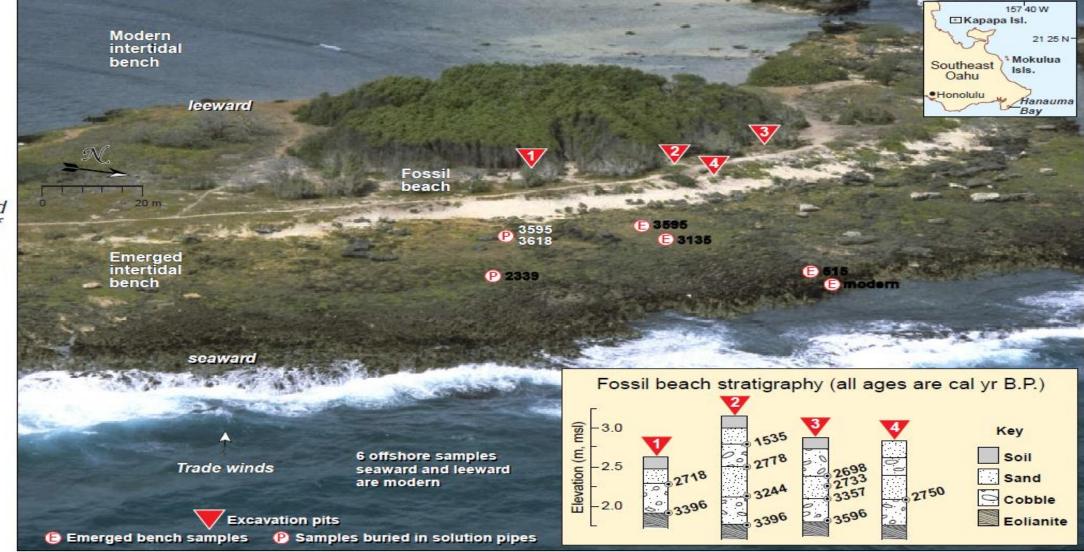


Figure 1.
Geomorphology,
stratigraphy, and
geochronology of
emerged fossil
beach sediments
on Kapapa
Island, Oahu,
Hawaii.

## http://www.soest.hawaii.edu/ericg/kap\_paper.pdf

#### **ABSTRACT:**

New data from an emerged coastal bench and associated fossil beach on Kapapa Island (Oahu), Hawaii, preserve a detailed history of middle to late Holocene sea level.

These include 29 new calibrated radiocarbon ages and elevations indicating mean sea level reached a <u>maximum</u> position of  $2.00 \pm 0.35$ m ca. 3500 yr B.P.

These results correlate with additional evidence from Hawaii and other Pacific islands and provide constraints on Oahu's long-term uplift rate (0.03-0.07 mm/yr), previously based solely on Pleistocene age shorelines.

Our sea-level reconstruction is consistent with geophysical model predictions of Earth's geoid response to the last deglaciation and with observations of increased Antarctic ice volume during the late Holocene.

3500 years ago sea level was ~2 meters higher than today, Kapapa Island, Oahu.

#### Age kyr (before present) 20140 120 40 20 0 Sea Level (m) -20 -40 -60 -80 -100-120 -140 Note that sea level 5000 years ago was 6 feet higher than at present -10 Sea level (m AHD) Note: Increased uncertainty below -25 m and for 3.7 kyr BP to 0 BP -30 -40 Sea-Level Curve -50 Limiting Envelope -60 12 10 8 14 C14 age (kyr BP)

Fig. 6.—Quaternary sea-level history for northeastern Australia. A) The last glacial cycle, from Chappell et al. (1996), and B) the postglacial sea-level rise, from Larcombe et al. (1995).

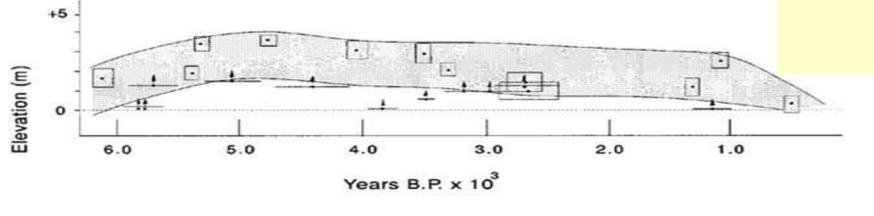
Modified from Fielding et al, "Holocene Depositional History of the Burdekin River Delta of Northeastern Australia," Journal of Sedimentary Research, 2006, v 76, 411-428, p. 419

# Australia



Location of Burdekin River mouth in Queensland

Wikimedia Commons: Burdekin River



space and time recognitruction

of paleo-sea level

Brazil

Fig. 4.—Sea-level envelope for the last 6000 yr in the study region, based on the reevaluation of sea-level data from Angulo and Lessa (1997).

G. C. Lessa et al. "HOLOCENE STRATIGRAPHY IN THE PARANAGUA" BAY ESTUARY, SOUTHERN BRAZIL," JOURNAL OF SEDIMENTARY RESEARCH, VOL. 68, NO. 6, NOVEMBER, 1998, P. 1060-1076

reconstructio of the

minimum paleo-sea level

#### 5000 years ago sea levels in the Paranagua estuary were 2-4 meters higher than today



#### http://www.tulane.edu/~tor/documents/GSAB2004.pdf

## Deciphering Holocene sea-level history on the U.S. Gulf Coast: A high-resolution record from the Mississippi Delta

#### ABSTRACT

Holocene relative sea-level (RSL) curves for U.S. Gulf Coast are in... conflict....

some characterized by a smooth RSL rise akin to widely accepted eustatic sea-level curves

others... a "stair-step" pattern with prolonged (millennium-scale) RSL stillstands alternating with rapid (meter-scale) rises.

In addition, recent work in Texas and Alabama has revitalized the notion of a middle Holocene RSL highstand, estimated at 2 m above present mean sea level...

(underlining, editing, added)



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# Journal of Sedimentary Research

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Middle Holocene Sea-Level Rias and Highstand at + 2M Central Texas Coast

#### From the Abstract:

"...a series of ridges along the Copano Bay.....shelly mud and fine sand... foram assemblages, at elevations of 1.95 m above the modern intertidal zone...

... calibrated radiocarbon ages on foram tests of ca. 6.8 to 4.8 ka.

These ridges are ... shallow subtidal to intertidal spits...

and are now emergent because of later sea-level fall..."

http://geology.gsapubs.org/content/30/3/203.abstract

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LOG-IN

**Rhizoliths** are root systems that have been encased in mineral matter.

Rhizolith evidence in Expand support of a late Holocene sealevel highstand at least 0.5 m higher than present at Key Biscayne, Florida

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#### This Article

doi: 10.1130/0091-7613(2002) 030<0203:REISOA> v. 30 no. 3 p. 203-206



Alert me to new issues of Geology

From the Abstract:

"... This ...(is).. evidence of a late Holocene sea-level at least 0.5 m higher than at present.

<sup>14</sup>C dating: they formed 1–2 k.y. before present.

This corresponds to a higher than present sea-level highstand supported by independent evidence from other areas in south Florida.

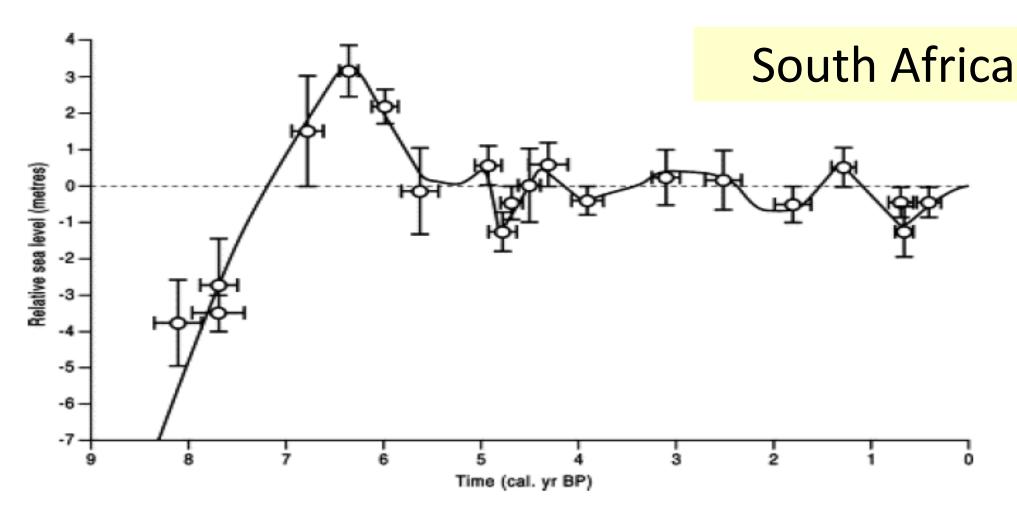


Fig. 6. Holocene sea-level fluctuations inferred from sea-level index points from the southern Langebaan Lagoon salt marsh, South Africa. Horizontal error bars refer to analytical uncertainty in radiocarbon age calibration (2σ range), and vertical error bars refer to uncertainty in sea level predictions derived from organic matter and shell material indicators (modified from Compton, 2001).

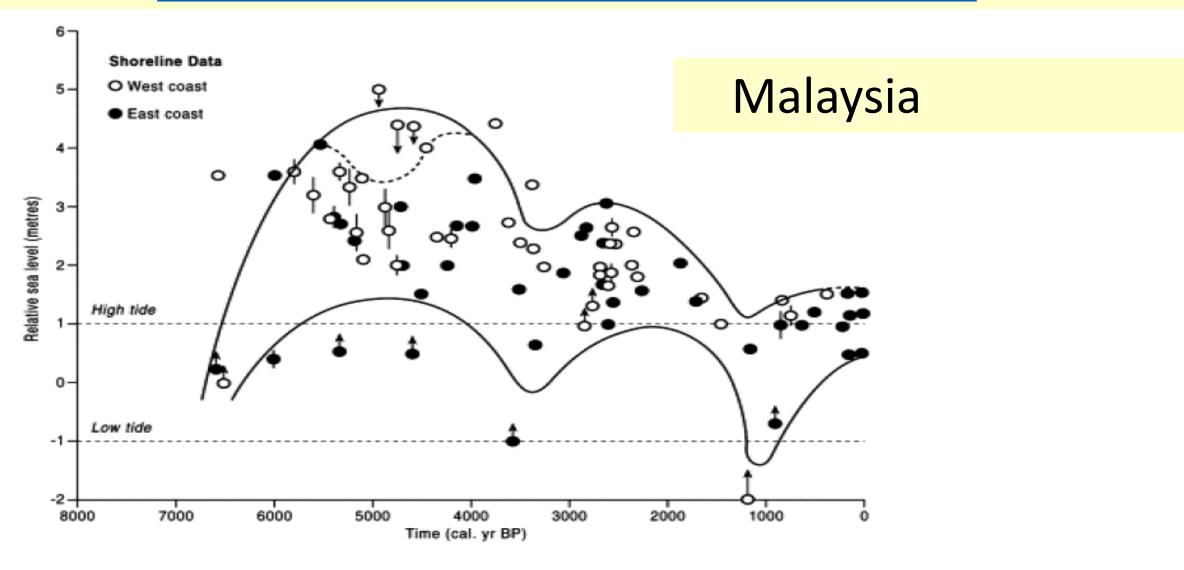


Fig. 7. Holocene sea-level envelope for Peninsula Malaysia (modified from Tija, 1996). Data points with arrows indicate directional (limiting) index points. Some index points have vertical error bars, where the vertical range of the sea-level indicator is understood. No age errors are considered, radiocarbon ages are plotted. The boundaries of the envelope are drawn midway between the extreme data points and the neighbouring points within the envelope (Tija, 1996).

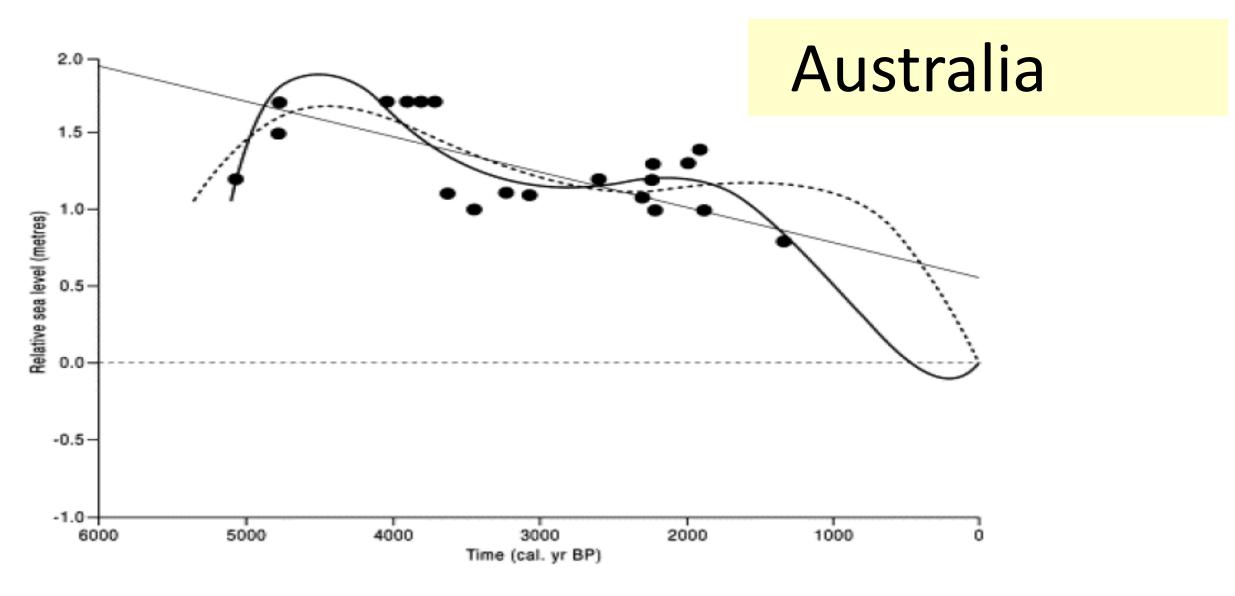
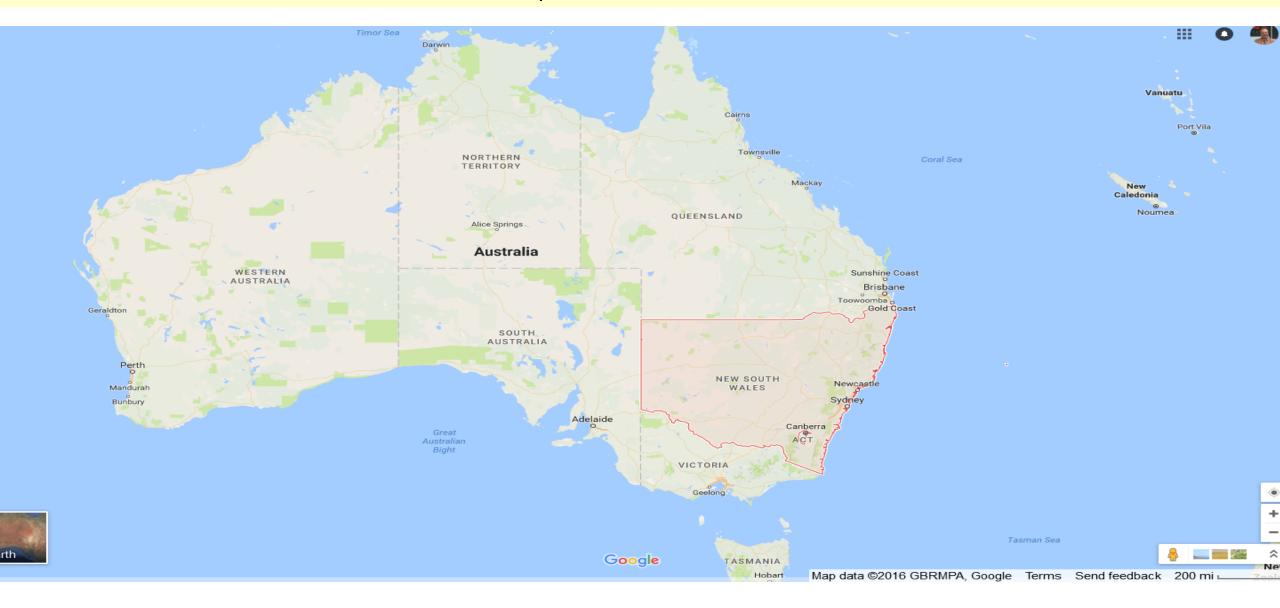


Fig. 8. A summary of linear and oscillating regression models from sea-level index points created using fixed biological indicators from SE Australia for the past 5000 years. Dotted line—4th order polynomial  $(r^2=0.69)$ , smooth line—5th order polynomial  $(r^2=0.78)$  (after Baker et al., 2001).

### Map of New South Wales



### Sea Level History from New South Wales

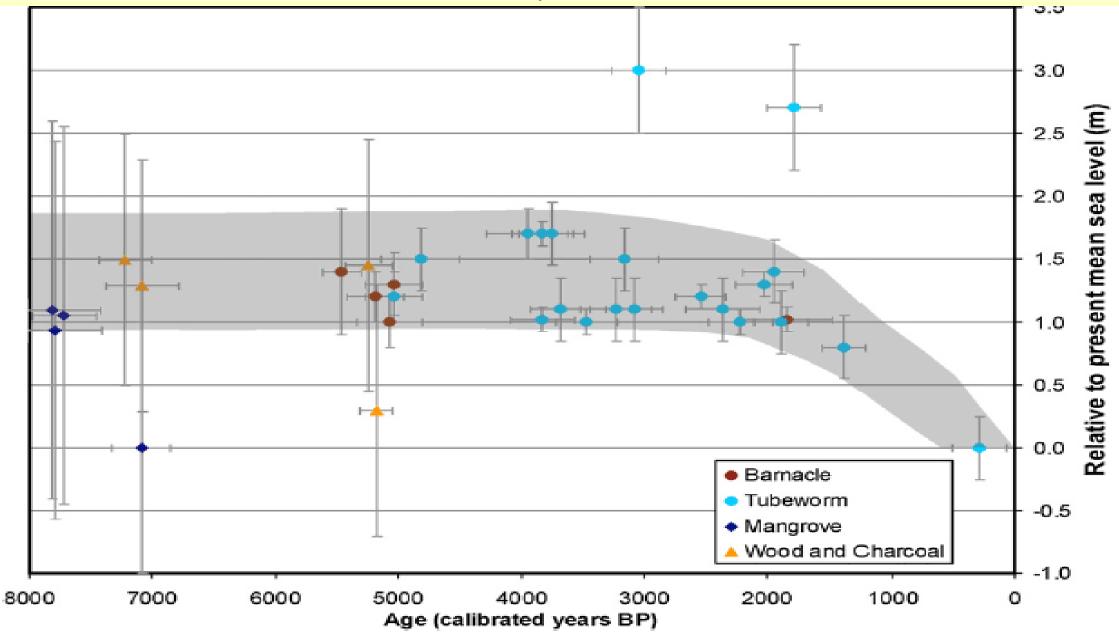


Fig. 5. Summary of key sea-level data from New South Wales (compiled in Sloss et al., 2007).

http://joannenova.com.au/2016/04/the-media-is-bored-of-climate-change-blame-abbott -and-those-climate-deniers-for-fooling-the-dumb-voters/

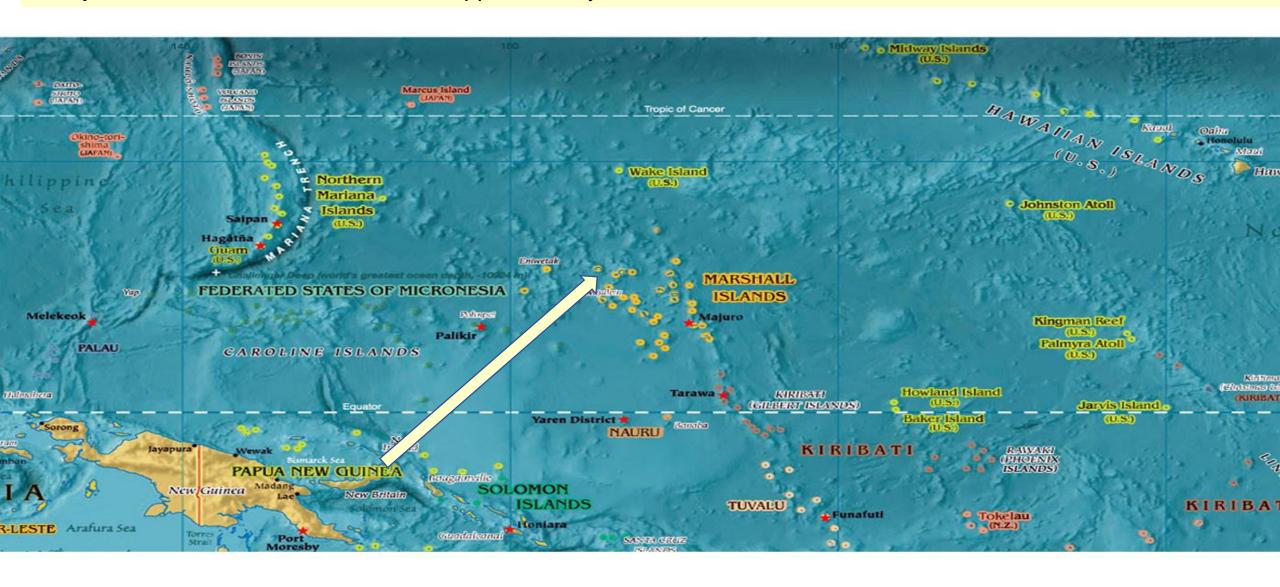
Map of Queensland, Australia. Timor Sea Darwin Cairns Townsville NORTHERN Coral S TERRITORY QUEENSLAND Alice Springs Australia WESTERN Sunshine Coast AUSTRALIA Brisbane Toowoomba Gold Coast Geraldton SOUTH AUSTRALIA Perth NEW SOUTH WALES Newcastle Mandurah Bunbury Sydney Adelaide Canberra & ACT Great Australian Bight VICTORIA

## Kwajalein

http://wattsupwiththat.com/2016/03/28/ooops-alarm-over-sinking-islands -premature-as-sea-level-falls-at-kwajalein-atoll

Map of Oceania showing Islands.

Kwajalein is shown with the arrow, it is approximately 9 N and 168 E...





# Global warming washes up WWII dead

High tides expose 26 Japanese soldiers' graves, sending warnings that low-lying islands face existential threat from rising sea levels

#### **BBC Online**



Kwajalein is one of Islands of the Marshall Islands, which are made up of 29 atolls. Photo: Google Map

Driven by global warming, waters in this part of the Pacific have risen faster than the global average.

With a high point just two metres above the waters, the Marshall Islands are one of the most vulnerable locations to changes in sea level.

The 29 atolls that make up the Marshall Islands are home to around 70,000 people.

The corals that have formed the island chain are highly vulnerable to the surrounding seas.

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Island's xposed one

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e waters, ulnerable

# DARWIN ONLINE

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#### Introduction to Coral reefs

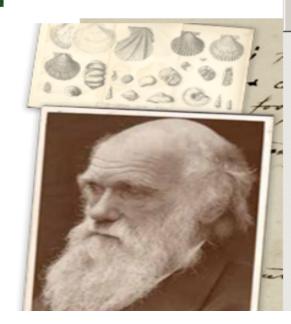
Coral reefs (1842) was Darwin's first monograph. It addressed an immensely ambitious subject. It is perhaps second only to the *Origin* for its masterful deduction from observation, leading to the construction of a theory that if proved would exceed all previous attempts and virtually solve its subject. The power of Darwin's monograph was well recognised by his contemporaries as a major scientific work. It was for this book and his monographs on barnacles that Darwin was awarded the Copley Medal by The Royal Society in 1864.

This introduction is not intended to repeat the bibliographical history of *Coral reefs* which, as with all Darwin's books, was dealt with extensively by R. B. Freeman. *Coral reefs* was first published in May 1842. Darwin brought out a revised second edition in 1872 and a third edition, with a substantial appendix by T. G. Bonney, appeared in 1889. The first edition was enthusiastically reviewed by Jackson 1842.

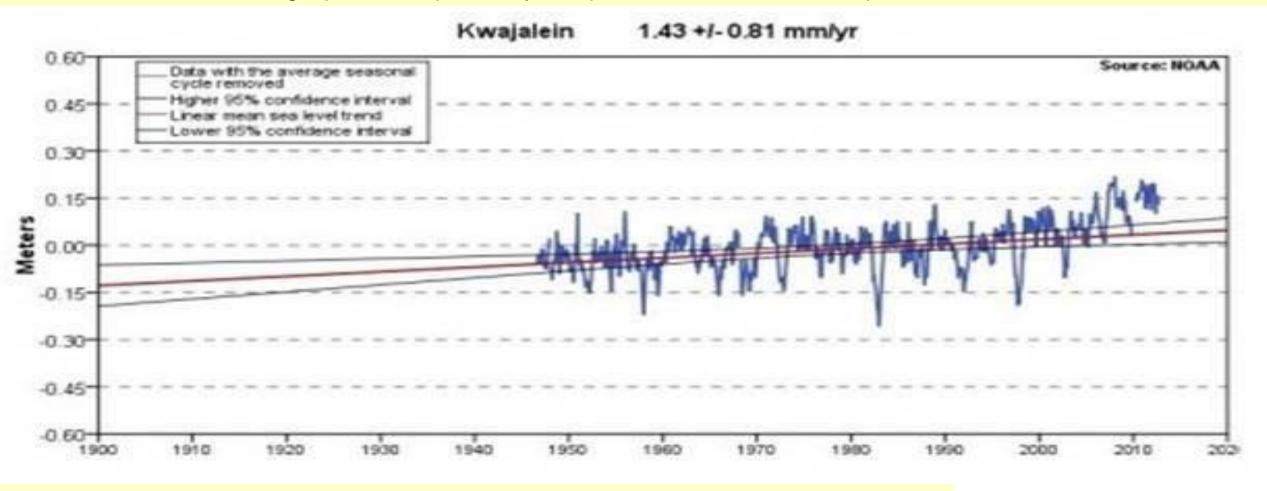
You read that correctly! Charles Darwin told the world in 1842 (!) that the origin of coral reefs was coral animal colonies growing from submerged seamounts.

Corals have kept pace with 400 ft of sea level rise since the depths of the Wisconsin Ice age, 23,000 years ago.

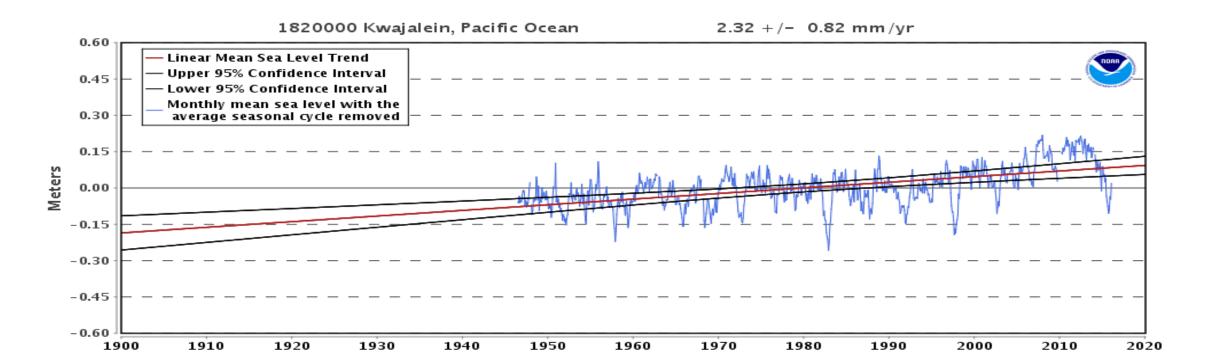
The notion that corals are susceptible to human-caused sea level rise acceleration is stunning ignorance.



This graphic was probably the proximate cause of the previous article.



Graphics such as this one are used by the Alarmist Community to show that the rate of sea level rise is accelerating, a similar claim is made for satellite-derived sea level time series, which purport to show satellite-based sea level rates of rise tripling.

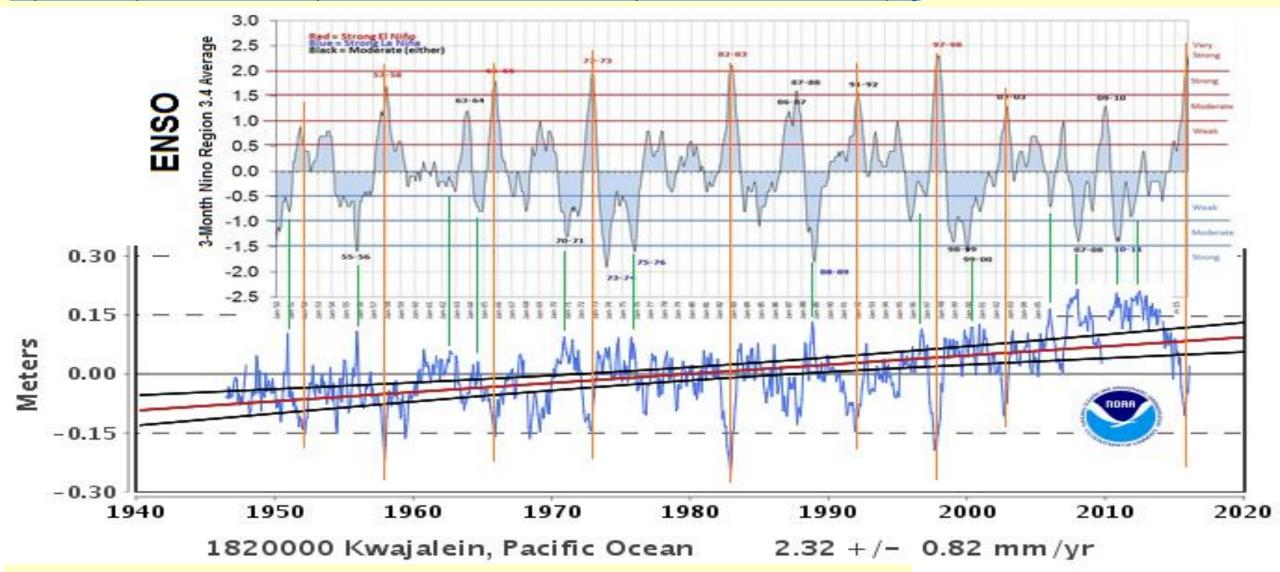


http://tidesandcurrents.noaa.gov/sltrends/sltrends\_station.shtml?stnid=1820000

#### The rest of the story:

It turns out that the previous time series was too short to correctly diagnose the long term rate of change in sea level rise.

Further, there is a component which is determined by the weather, specifically by ENSO, El Nino Southern Oscillation.

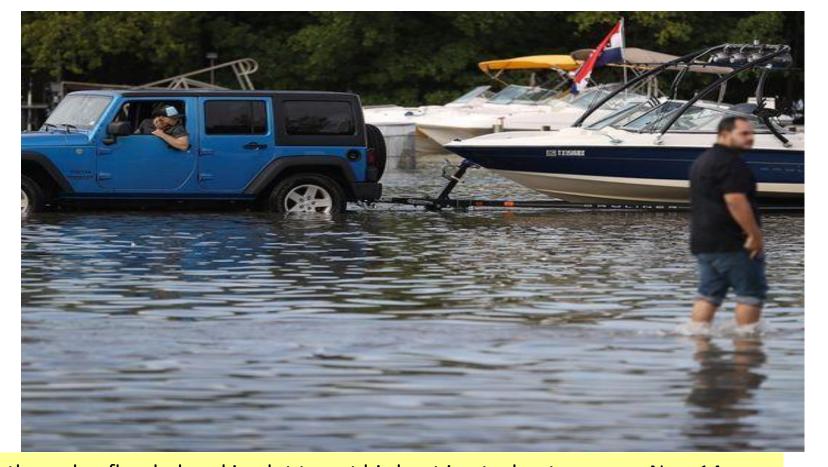


Notice the anti-correlation of sea level at Kwajalein with El Nino. It appears as if when El Nino brings warm surface water temperatures offshore the Americas, and heavy rainfall to the Mountain West, that's when cooler water and accompanying sea level falls occur at Kwajalein.

#### "Rising seas spurred record number of 'high-tide' floods in U.S. last year"

https://www.usatoday.com/story/weather/2017/06/16/rising-seas-spurred-record-number-high-tide-floods-us-last-year/1029185

Doyle Rice, USA TODAY Published 1:20 p.m. ET June 16, 2017 | Updated 1:20 p.m. ET June 16, 2017



Nick Trace drives through a flooded parking lot to put his boat in at a boat ramp on Nov. 14, 2016, in North Miami, Fla. The flood waters are caused by the combination of the lunar orbit which causes seasonal high tides, also known as a King tide, and what some scientists believe is rising sea levels due to climate change. (Photo: Joe Raedle, Getty Images) <u>Underlining added</u>.

https://therealdeal.com/miami/2017/03/10/miami-beach-mayor-says-coastal-cities-need-more-state-and-federal-help-to-deal-with-sea-level-rise/

THE REAL DEAL

Miami

New York

Los Angeles

## Miami Beach mayor says coastal cities need more state and federal help to deal with sea-level rise

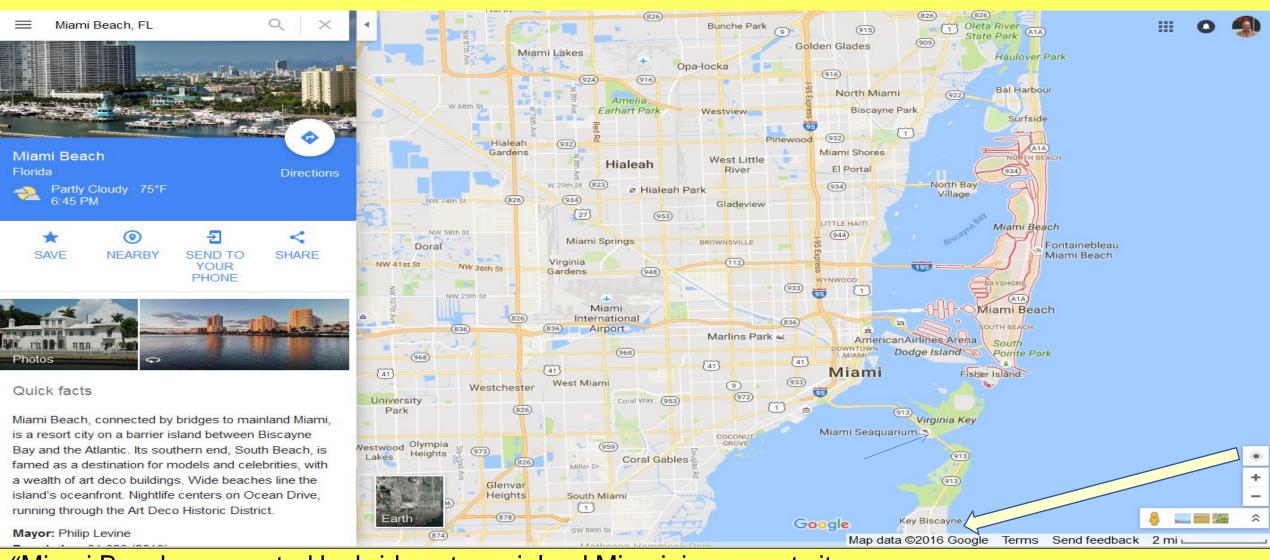
Mayor Philip Levine says red tape makes it hard to get money for mitigation efforts

By James Teeple | March 10, 2017 08:45AM



Calling sea level rise an "existential threat," Miami Beach Mayor Philip Levine Thursday called on federal and state authorities to do more to help coastal cities like Miami Beach deal with rising tides that he says are threatening cities like his.

#### https://www.google.com/maps/place/Miami+Beach,+FL/@25.8071379,-80.2129736,12



"Miami Beach, connected by bridges to mainland Miami, is a resort city on a barrier island between Biscayne Bay and the Atlantic."

Remember Virginia Key's and Key Biscayne's location (yellow arrow)

From Academy Award Winners

Leonardo DiCaprio and Fisher Stevens

THE SCIENCE IS CLEAR, THE FUTURE IS NOT.

## BEFORE THE FLOOD

Executive Producer Martin Scorsese

#### **IN THEATERS OCTOBER 21**

NATIONAL GEOGRAPHIC PRESENTS A RATPAC DOCUMENTARY FILMS PRESENTATION OF AN APPIAN WAY PRODUCTION OF ASSESSMENT AND WITH INSURGENT DOCS AND DIAMOND DOCS A TEMMEY LEONARDO DICAPRIO AND FISHER STEVENS

BEFORE THE FLOOD

ANATHE BY MARK MONBOE BOILD BY GEOFFREY RICHMAN A.C.E. BEN SOZANSKI ABHAY SOFSKY AND BRETT BANKS CREATIONAMES AN TONIO ROSSI ESPECITIVE MURIC PRODUCTS TRENT BEZNOR AND ATTICUS ROSS SEPECITIVE MODICES MARTIN SCORSES ADAM BARDACH MARK MONROE AND ZARA DUFFY PRIBATED BY FISHER STEVENS TREVOR DAVIDOSKI JERNIFER BAYESON BRETT RATINER AND JAMES PACKER PRODUCTS BY LEONARDO DICAPRIO BURCHD BY FISHER STEVENS

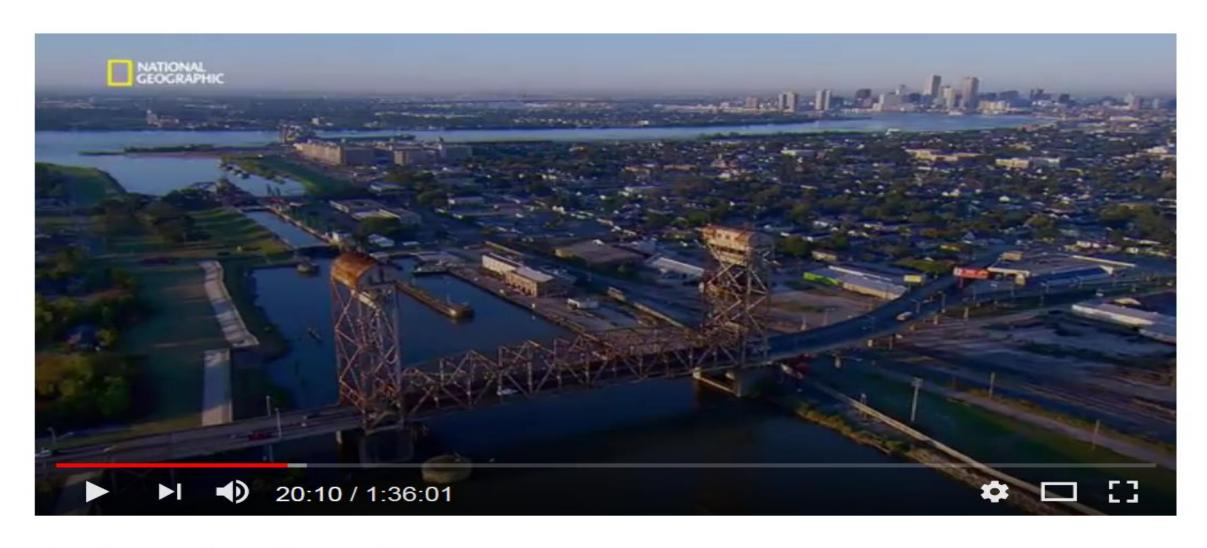








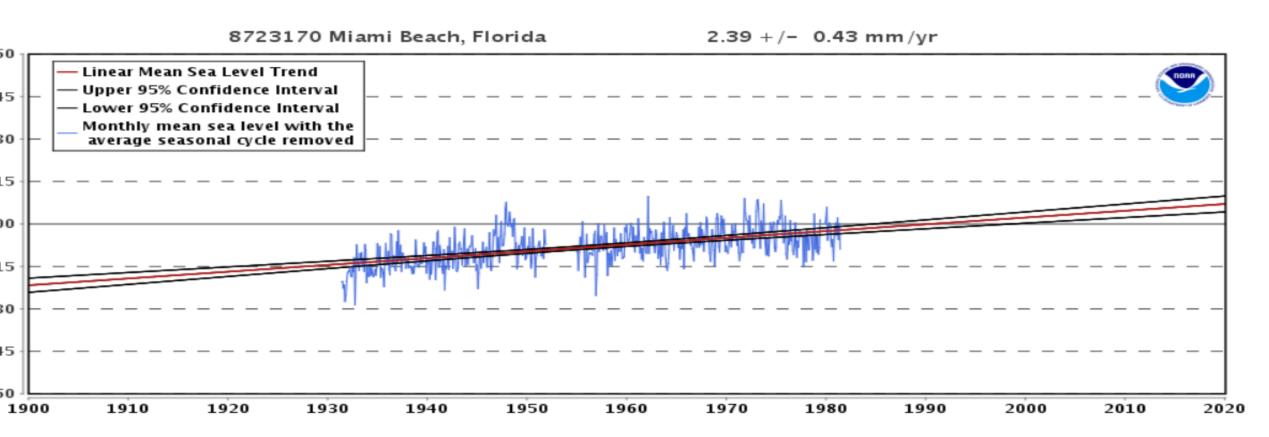




## Before the Flood

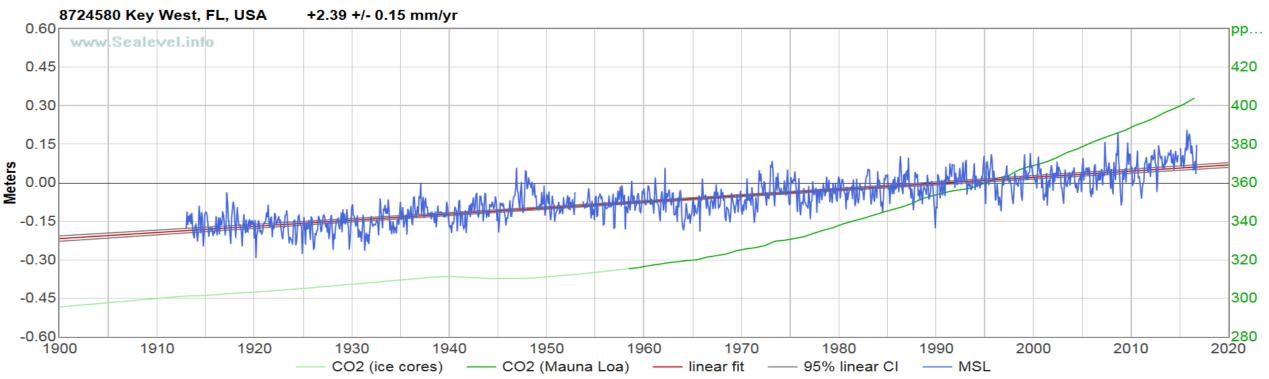
#### http://tidesandcurrents.noaa.gov/sltrends/sltrends\_station.shtml?stnid=8723170

#### Mean Sea Level Trend 8723170 Miami Beach, Florida



Miami Beach tide gage, in use since the 1930s, shows, like all tide gages, no acceleration of sea level rise with increasing use of fossil fuels after the post-WW2 economic boom.

## Mean Sea Level at Key West, FL, USA (NOAA <u>8724580</u>, 940-071, PSMSL <u>188</u>)



A nearby tide gage with a continuous record over 100 years long and an accompanying carbon dioxide record shows that the rate of sea level rise has not changed in the century -plus time domain.

The data show that atmospheric <CO2> doesn't affect the rate of sea level rise in Florida

## https://www.sealevel.info/data.psp

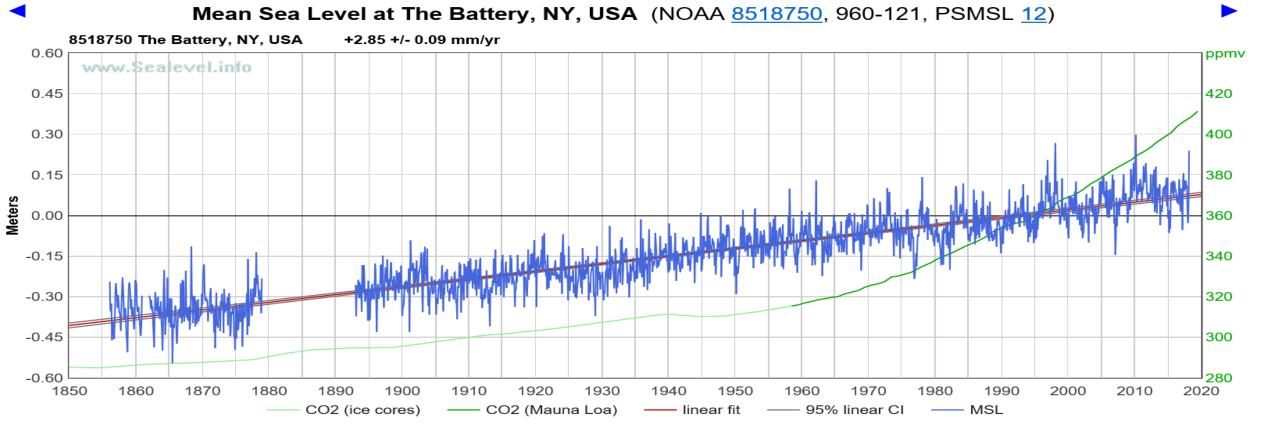


Recommended web site by Dave Burton, which provides additional info on sea level rise, including <CO2> The Data tab is highlighted.

## https://www.sealevel.info/MSL graph.php?id=Battery

Blue = Sea Level, Green = <CO2> There's no acceleration of rate of sea level rise since the 1850s

Sealevel.info → Data → 8518750



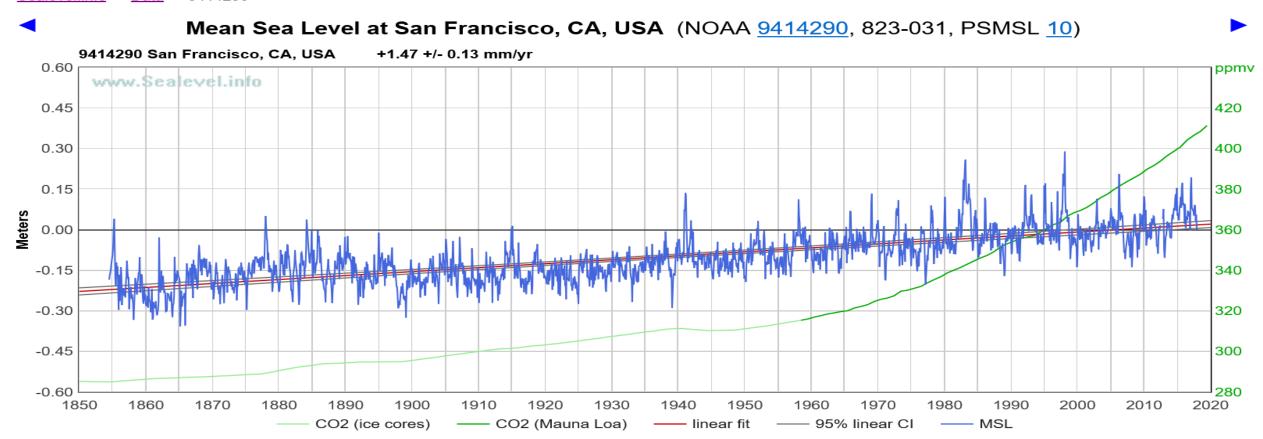
The mean sea level (MSL) trend at The Battery, NY, USA is +2.85 mm/year with a 95% confidence interval of ±0.09 mm/year, based on monthly mean sea level data from 1856/1 to 2018/3. That is equivalent to a change of 0.93 feet in 100 years. (R-squared = 0.827)

The Battery, at the foot of Manhattan Island, NYC. longest tide gage record on East Coast

## https://www.sealevel.info/MSL graph.php?id=San+Francisco

Blue = Sea Level, Green = <CO2> There's no acceleration of rate of sea level rise since the 1850s

Sealevel.info → Data → 9414290



The mean sea level (MSL) trend at San Francisco, CA, USA is +1.47 mm/year with a 95% confidence interval of ±0.13 mm/year, based on monthly mean sea level data from 1854/7 to 2017/12. That is equivalent to a change of 0.48 feet in 100 years. (R-squared = 0.559)





### USGS Groundwater Information

Home
 Monthly Highlights
 Data & Information
 Publications
 Monthly Highlights

## Aquifer Basics

Aquifer by rock type

Aquifer Links

Aquifer Links

<u>Principal</u> Aquifers Map

Ground Water Atlas

USGS

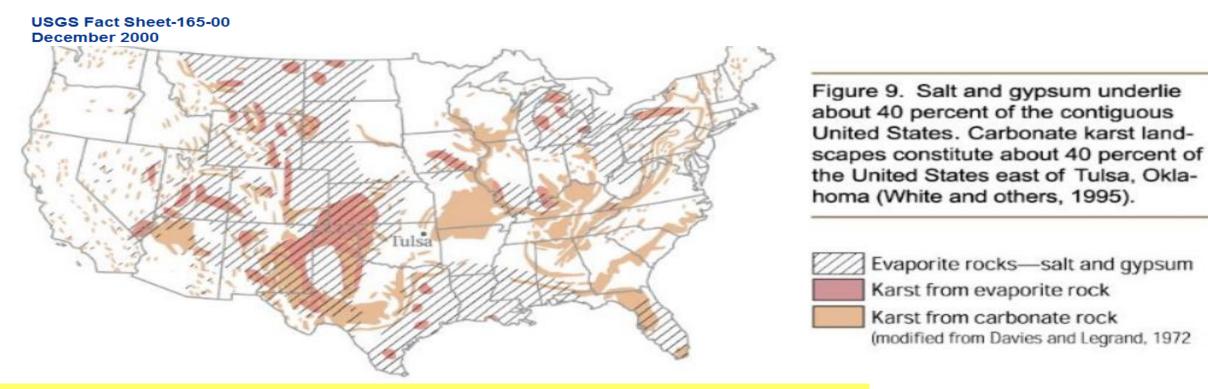
# Unconsolidated and semiconsolidated sand and gravel aquifers

The principal water-yielding aquifers of North America can be grouped into five types: unconsolidated and semiconsolidated sand and gravel aquifers, sandstone aquifers, carbonate-rock aquifers, aquifers in interbedded sandstone and carbonate rocks, and aquifers in igneous and metamorphic rocks. This <a href="map.org">map.org</a> unconsolidated and semiconsolidated sand and gravel aquifers in the United States shows the shallowest principal aquifer.



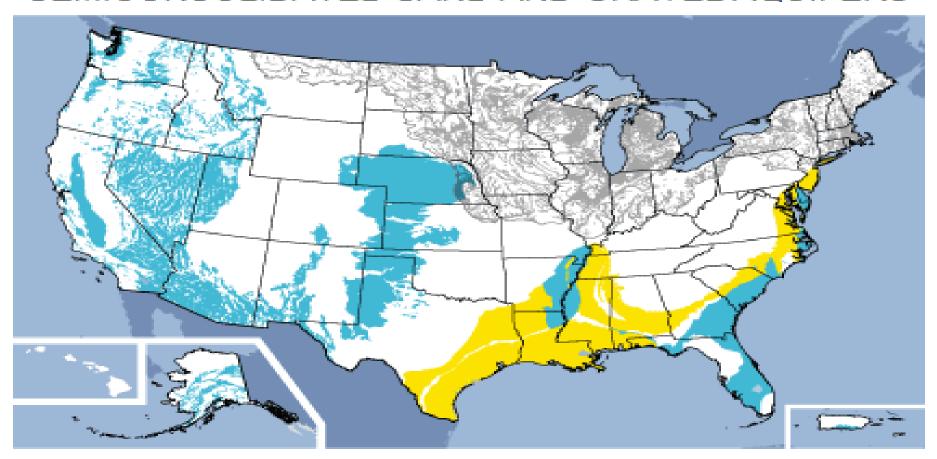
#### GROUND WATER RESOURCES FOR THE FUTURE

#### Land Subsidence in the United States



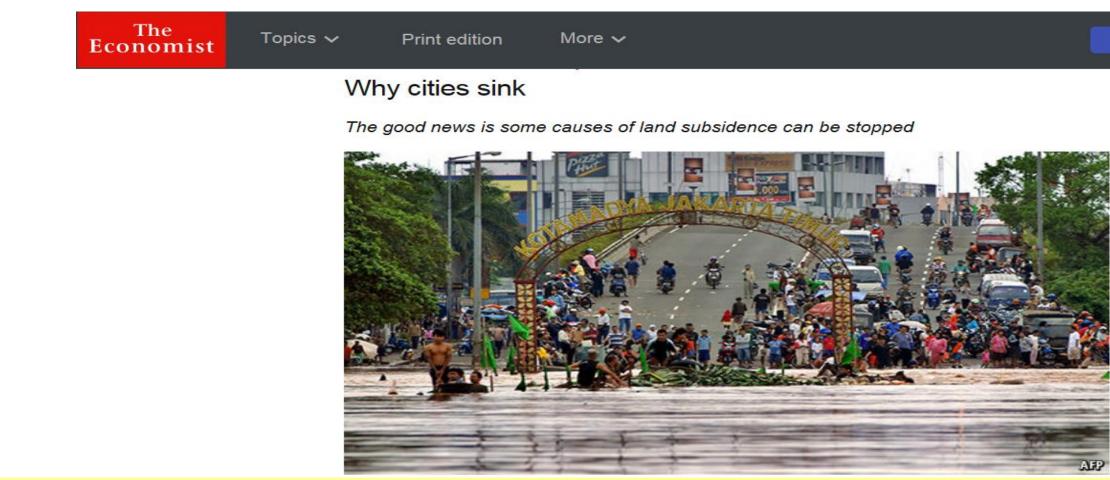
Land subsidence from groundwater pumping is the key element forgotten by sea level alarmists

## PRINCIPAL UNCONSOLIDATED AND SEMICONSOLIDATED SAND AND GRAVEL AQUIFERS



- Unconsolidated sand and gravel aquifers at or near the land surface.
- Semiconsolidated sand and gravel aquifers.
- Sand and gravel aquifers of alluvial and glacial origin are north of the line of continental glaciation.

### https://www.economist.com/blogs/economist-explains/2017/02/economist-explains-18

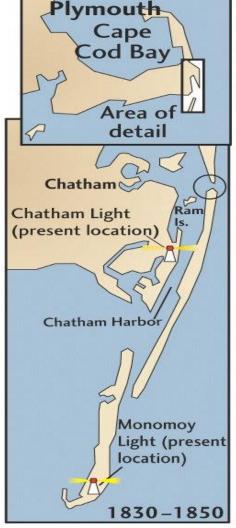


In America groundwater extraction without commensurate recharge is responsible for 80% of subsidence.

### http://bc.outcrop.org/GEOL\_B10/lecture29.html

From a first year Geology course at Bakersfield College showing the evolution of Monomoy Island, Massachusetts. Coastal Erosion of a barrier beach...

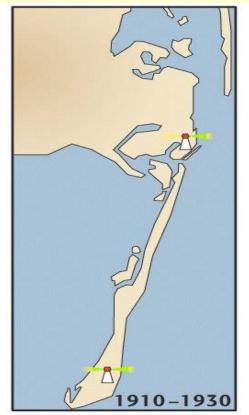
... nothing to do with added CO2 in the air.



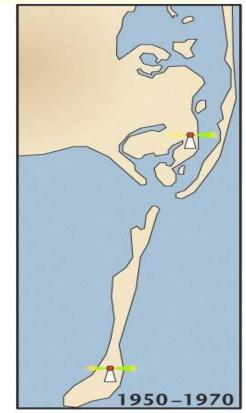
Circle shows approximate location of 1846 breach in barrier spit. Ram Island later disappears.



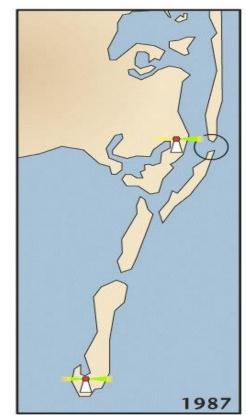
Beach south of the inlet breaks up and migrates southwest toward the mainland and Monomoy.



The southern beach has disappeared, and its remnants soon will connect Monomoy to the mainland.



The northern beach steadily grows with cliff sediment; Monomoy breaks from the mainland.



140-year cycle begins again with Jan. 2 breach in the barrier spit across from Chatham Light (circle).

More evidence of fraud in climate "science"

## A Major Deception on Global Warming

Op-Ed by Frederick Seitz

Wall Street Journal, June 12, 1996

The following passages are examples of those included in the approved report <u>but deleted</u> from the supposedly peer-reviewed published version:

"None of the studies cited above has shown clear evidence that we can attribute the observed [climate] changes to the specific cause of increases in greenhouse gases."

"No study to date has positively attributed all or part [of the climate change observed to date] to anthropogenic [man-made] causes."

"Any claims of positive detection of significant climate change are likely to remain controversial until uncertainties in the total natural variability of the climate system are reduced."

"...I have never witnessed a more disturbing corruption of the peer-review process than the events that led to this IPCC report."

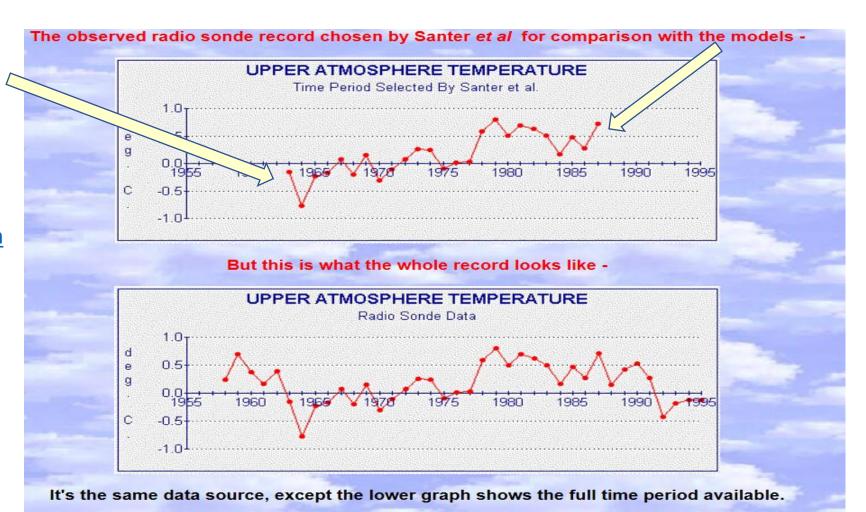
1995 Madrid Meeting of IPCC: "No attribution of climate change to changes in greenhouse gas concentrations."

1966 Second Assessment report: "...these results point towards a human influence on global climate." Changes made by Ben Santer singlehandedly, literally in the dark of night, without coordination with the Madrid Panel of Scientists.

Data showing the "Discernible Human Influence" on climate

http://www.john-daly.com/sonde.htm

The Rest of the Story!
Santer's deliberate deception:
He's using a cherry picked
Subset of the whole record...
which shows COOLING!



Singer, S. Fred, LACK OF CONSISTENCY BETWEEN MODELED AND OBSERVED TEMPERATURE TRENDS, <u>ENERGY & ENVIRONMENT</u>, VOLUME 22, No. 4, June, 2011

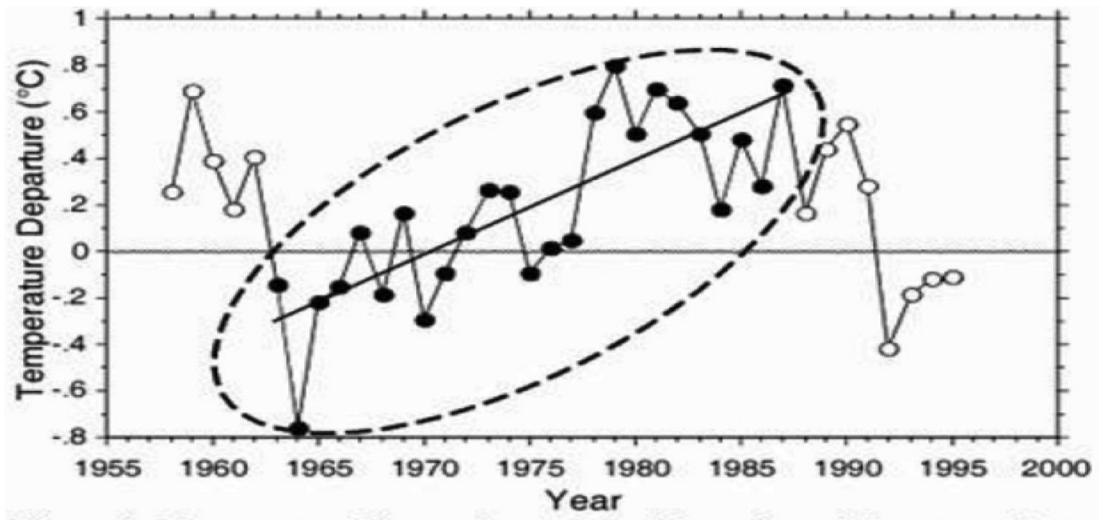


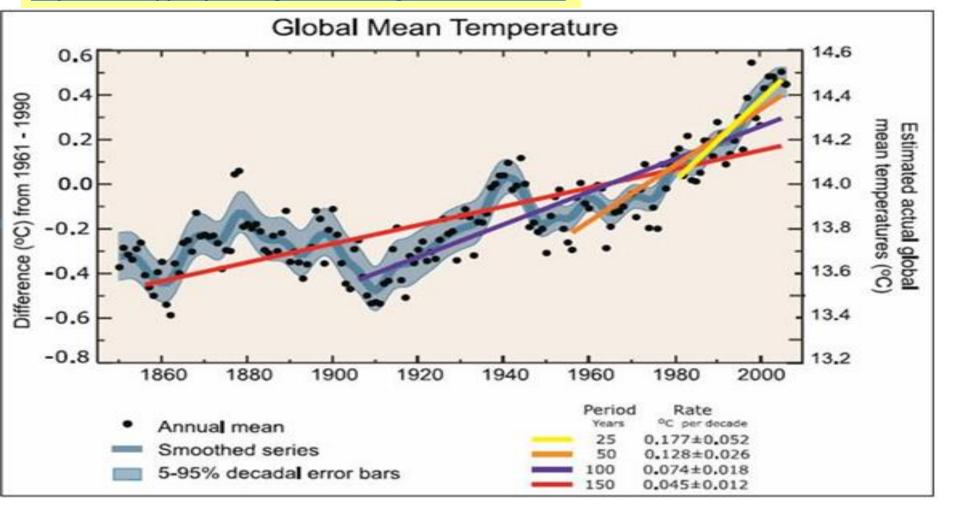
Figure 1. Temperature history from a crucial portion of the atmosphere, 1958–1995. For some reason, in the important paper "demonstrating" climate change, Ben Santer and colleagues only used the portion of the data circled here.

IPCC creates artificial acceleration by calculating short term linear trends within cyclical data. Below is

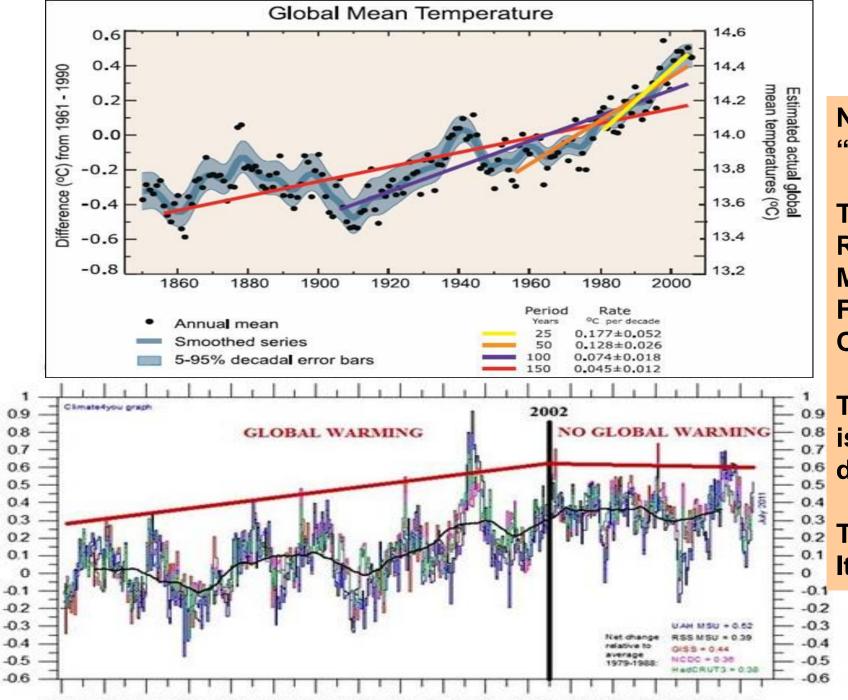
Fig. FAQ 3.1 from Chapter 3 of the IPCC AR4 2007 report. The report states, "Note that for shorter recent periods, the slope is greater, indicating accelerated warming." <underlining added>

[http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter3.pdf]

http://www.appinsys.com/globalwarming/Acceleration.htm



See for yourself: as the period gets shorter, rate of rise of temperature increases.



Temperature anomaly (deg.C)

Now, "the Rest of the Story"

Temperatures ceased Rising and by many Measures has been Falling since ~1997, Or, for about 18 years!

The IPCC graph is deliberately deceptive.

This is not science. It is political activism.

## How do we "know" that 1998 was the warmest year of the millennium? Stephen McIntyre Presentation at Ohio State University May 16, 2008

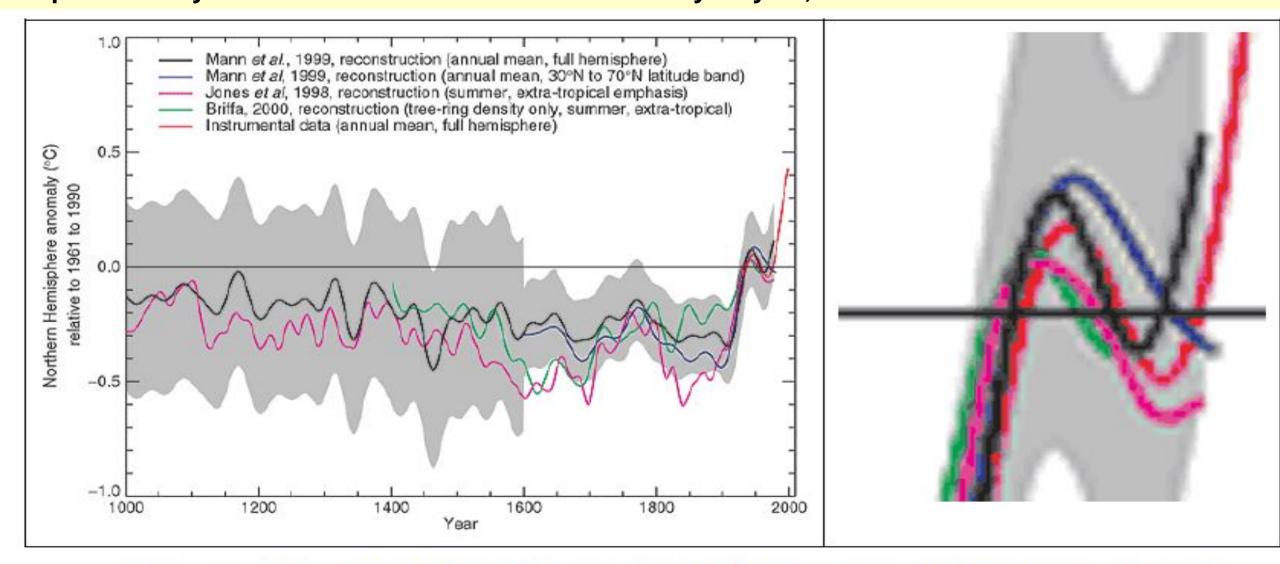
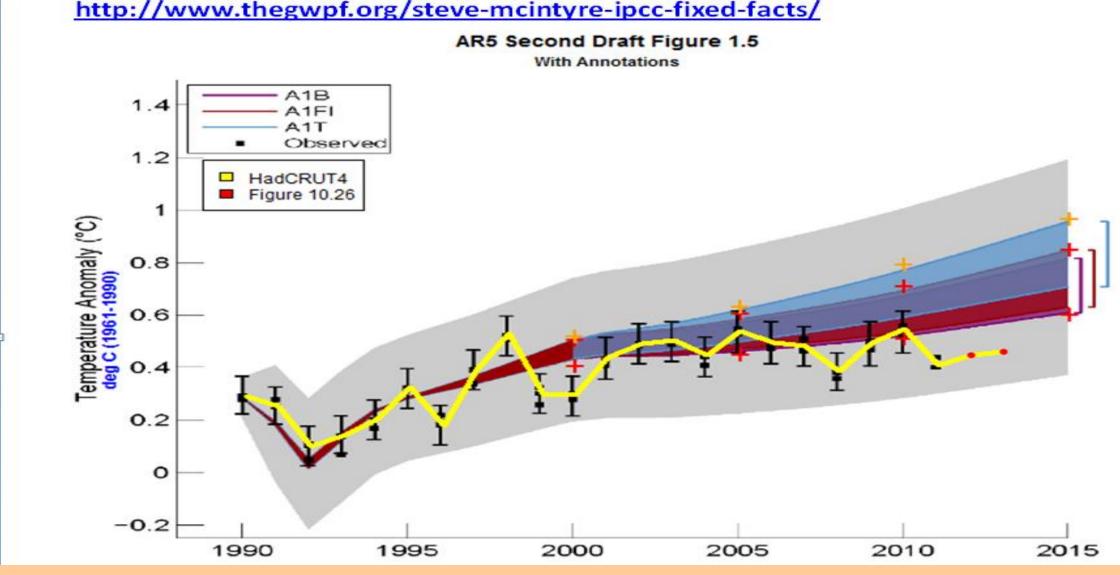


Figure 28. Left – IPCC TAR Spaghetti Graph. Right- blow-up of right hand portion. The divergent portion (after 1960) of the Briffa reconstruction (green) was deleted in IPCC TAR (green) 1960 and thus no visible "divergence". Similar truncation in AR4.



IPCC AR5 Second Order Draft, Fig 1.5. Red + marks are AR4 uncertainty Bounds. Red dots show last two years of observations clearly outside AR4's uncertainty bounds.

This figure never made it to IPCC AR5 Final Report, or Summary for Policy Makers <fraud>