

Science and Believe in modern Thailand



Helmut Dürrast
Geophysics Research Center
Prince of Songkla University
HatYai, Thailand

Definitions

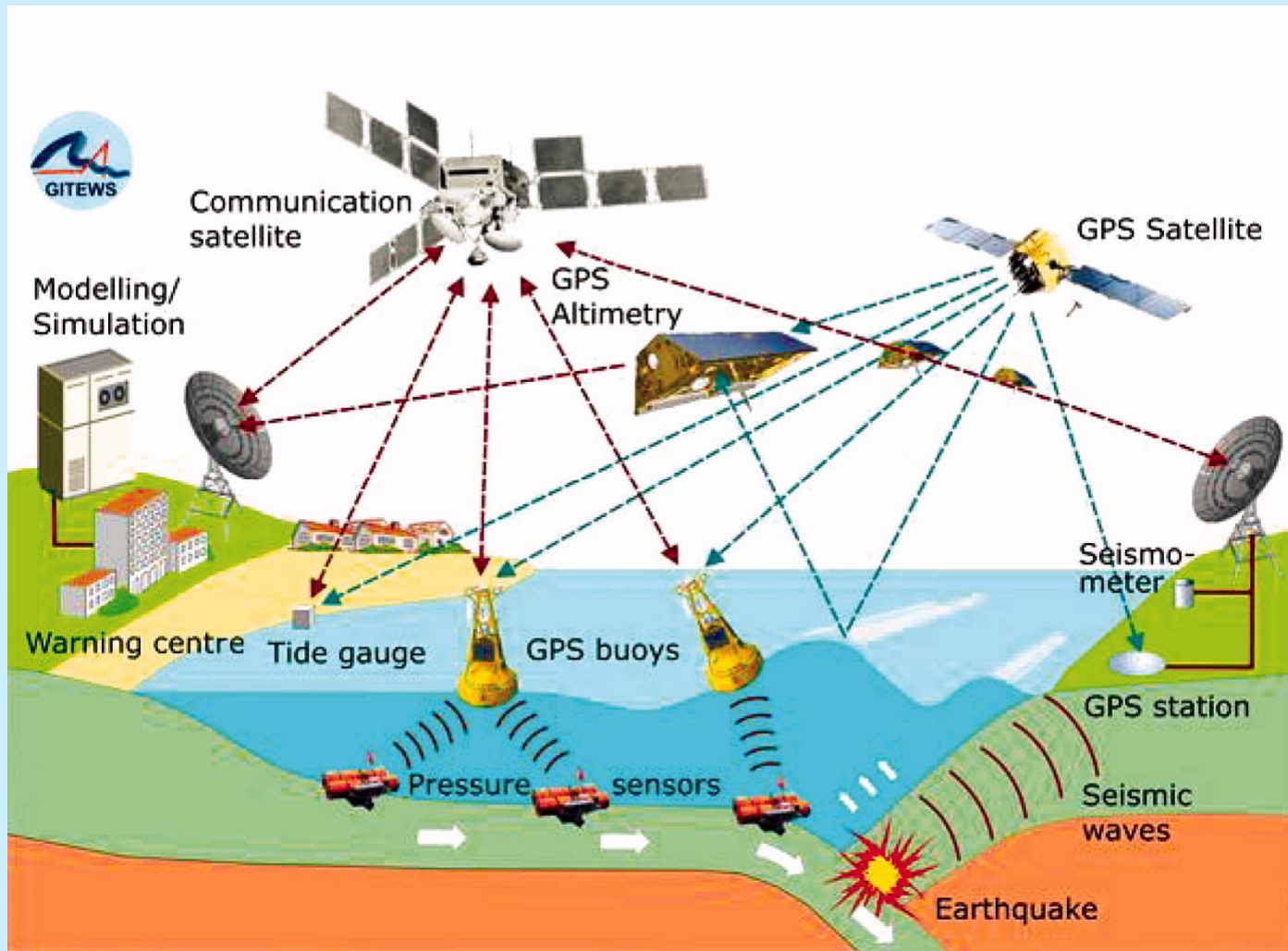
- *Believe*
not including religious believes
- *Science*
including natural sciences (hard science),
social sciences and humanities (soft sciences)

Science – a fundament of *modern societies*

2004 Indian Ocean Tsunami

- 26 Dec 2004 – Mw 9.3 earthquake off the west coast of Northern Sumatra
- triggered Indian Ocean wide Tsunami
- with many people killed, including many foreign tourists, and livelihoods lost
- subsequent international involvement
- since that setup of tsunami warning system

Tsunami Early Warning System



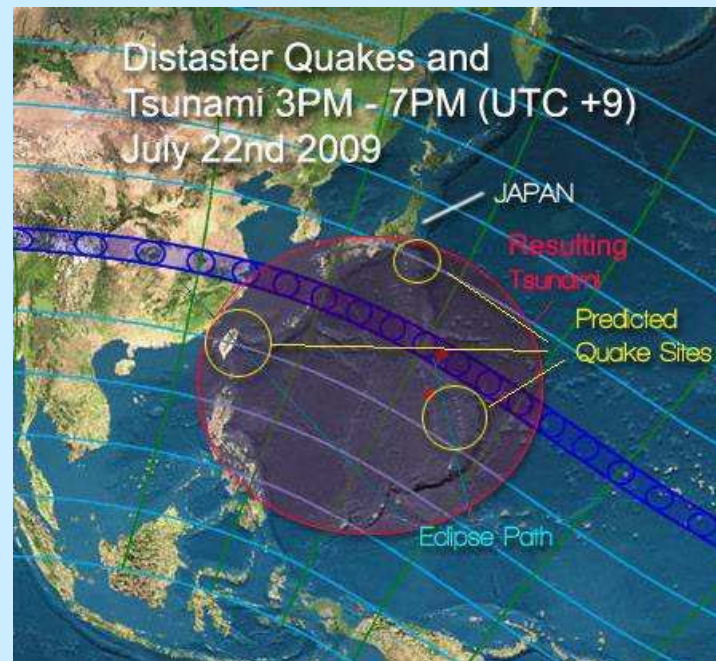
Tsunami hoaxes/rumors

- usually start and spread via e-mail attachments (usually in Thai language)
- picked up by regular Thai and English language media (newspaper, TV)
- People here in Thailand often believe them !
- Examples from 2009, 2010,... still going on these days

Hoaxes / Rumors

- *deliberately fabricated falsehood made to masquerade as truth*
- *unverified account or explanation of events circulating from person to person and pertaining to an object, event, or issue in public concern*

(after Wikipedia, Oxford English Dictionary)



E-mail attachment, 2009

*"Hello there. I just wanted 2 let you know that please stay away from the beaches all around in the month of July. **There is a prediction** that there will be another tsunami hitting on July 22nd. It is also when there will be sun eclipse. Better 2 be safe than sorry."*

(translation from Thai language)

... another earthquake/tsunami 'prediction' for 12 June 2010

Meteorological Dept denies speculation of massive quake, tsunami

BANGKOK, 11 June 2010 (NNT) – The Meteorological Department warns people not to panic about a speculation of an impending powerful earthquake and tsunami, which may hit Thailand tomorrow.

The Meteorological Department yesterday announced that none of the disaster-monitoring centers worldwide had issued any warning about a major quake which, as rumored, would occur on 12 June 2010. The statement said that no one could predict as to where or when an earthquake would take place.

State of the art knowledge:

We cannot predict earthquakes and tsunamis triggered by earthquakes.

... what happened the next day ?

There was an earthquake ...

Magnitude

Mw 7.5

Region

NICOBAR ISLANDS,
INDIA REGION

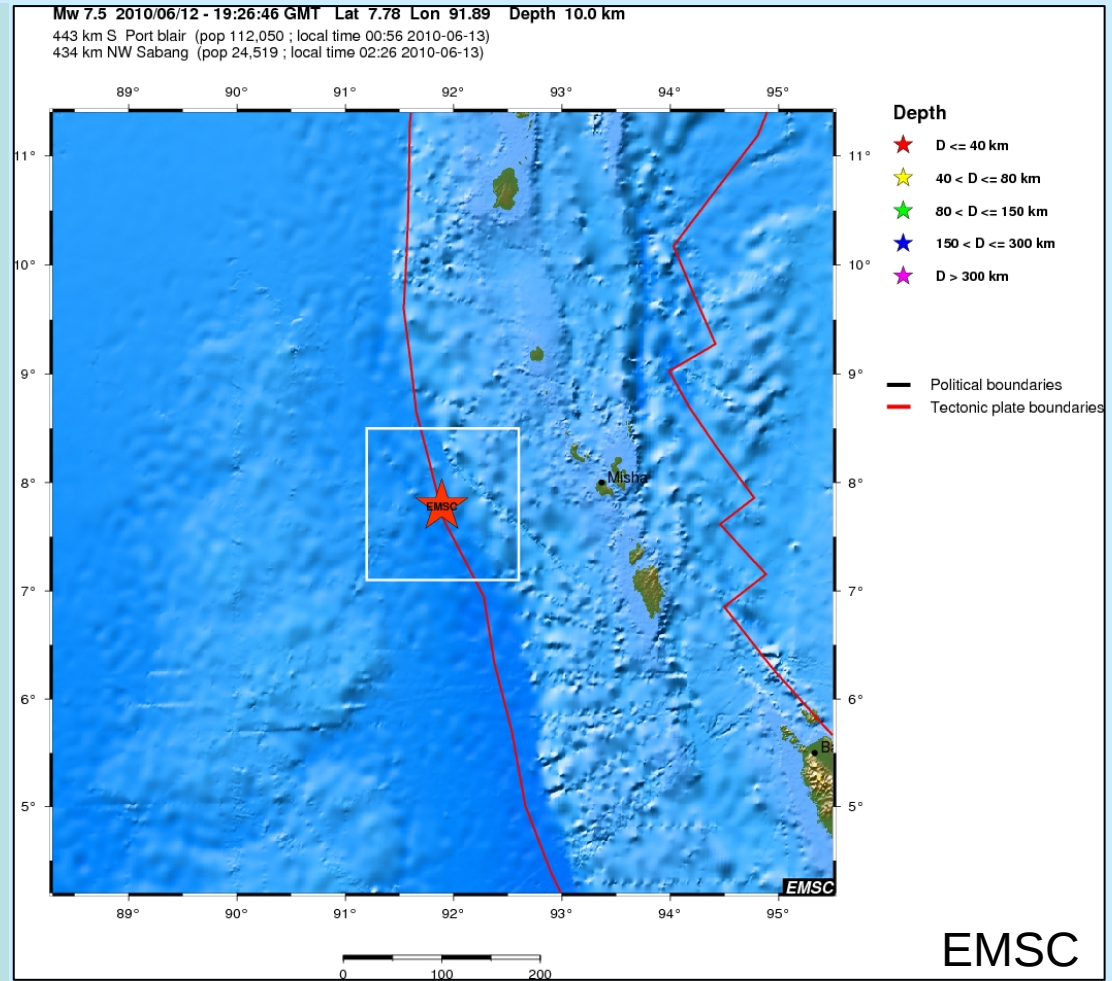
UTC Time

12 June 2010; 19:26:46.6

Thai Time (UTC + 7 hrs)

13 June 2553,
2:26 in the early morning

NO Tsunami !

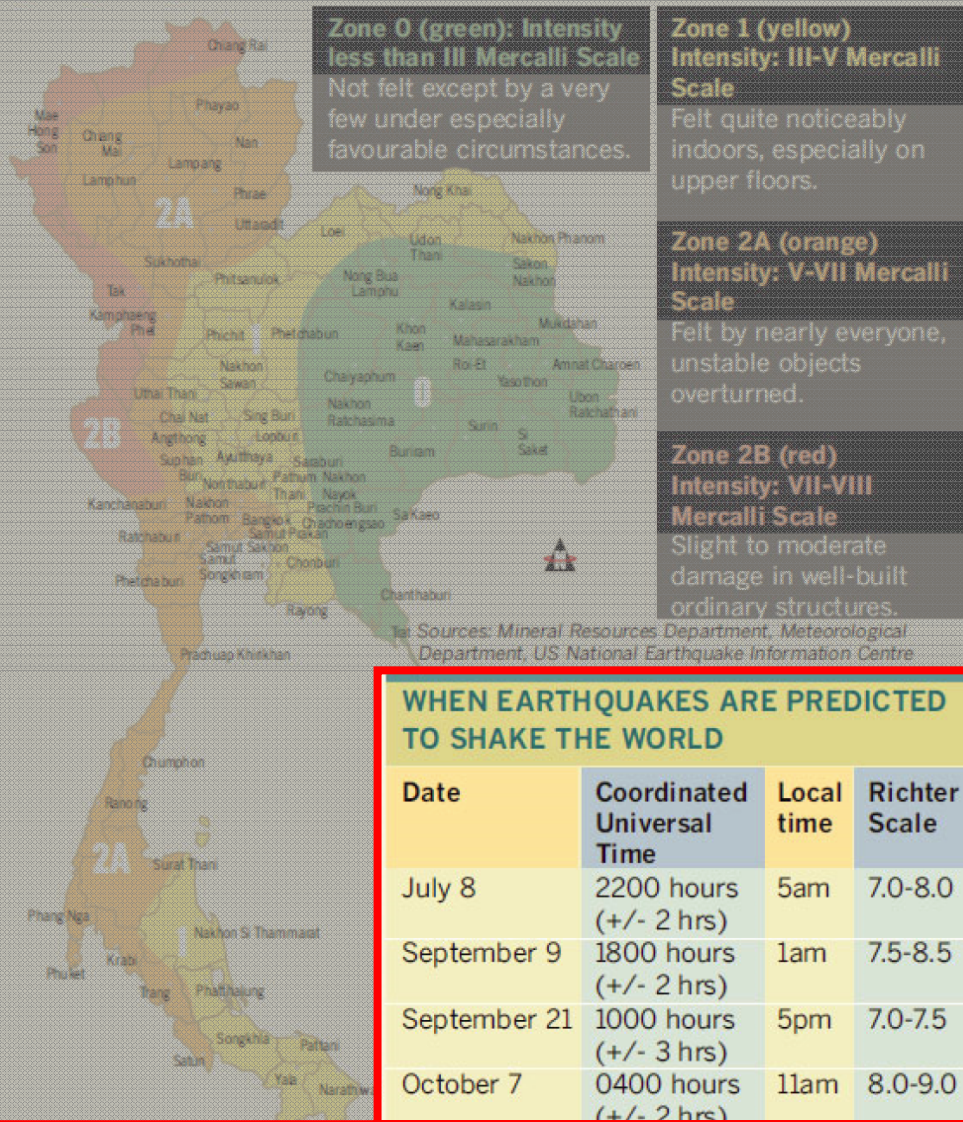


Earthquake fears trigger memories of tsunami

Published: [14/06/2010](#) at 12:00 AM

- Kongpop U-yen, a **Thai engineer who works at the National Aeronautics and Space Administration (Nasa)** in the US, said the alignment of the planets on Saturday could cause natural disasters such as earthquakes and tsunamis.
- The theory was backed by former NDWC chief Smith Dharmasarojana, who said it was **backed by scientific data**.
- **The forecast, however, met with criticism from the scientific community.**
- Mr Kongpop said a solar eclipse was due to occur on Saturday night as a result of the alignment of the earth, the moon and the sun. The alignment would release considerable cumulative energy, which could affect the earth

SEISMIC HAZARD MAP OF THAILAND



Source: As predicted by Kongpop U-yen, a Thai engineer who works for Nasa

NATION GRAPHICS

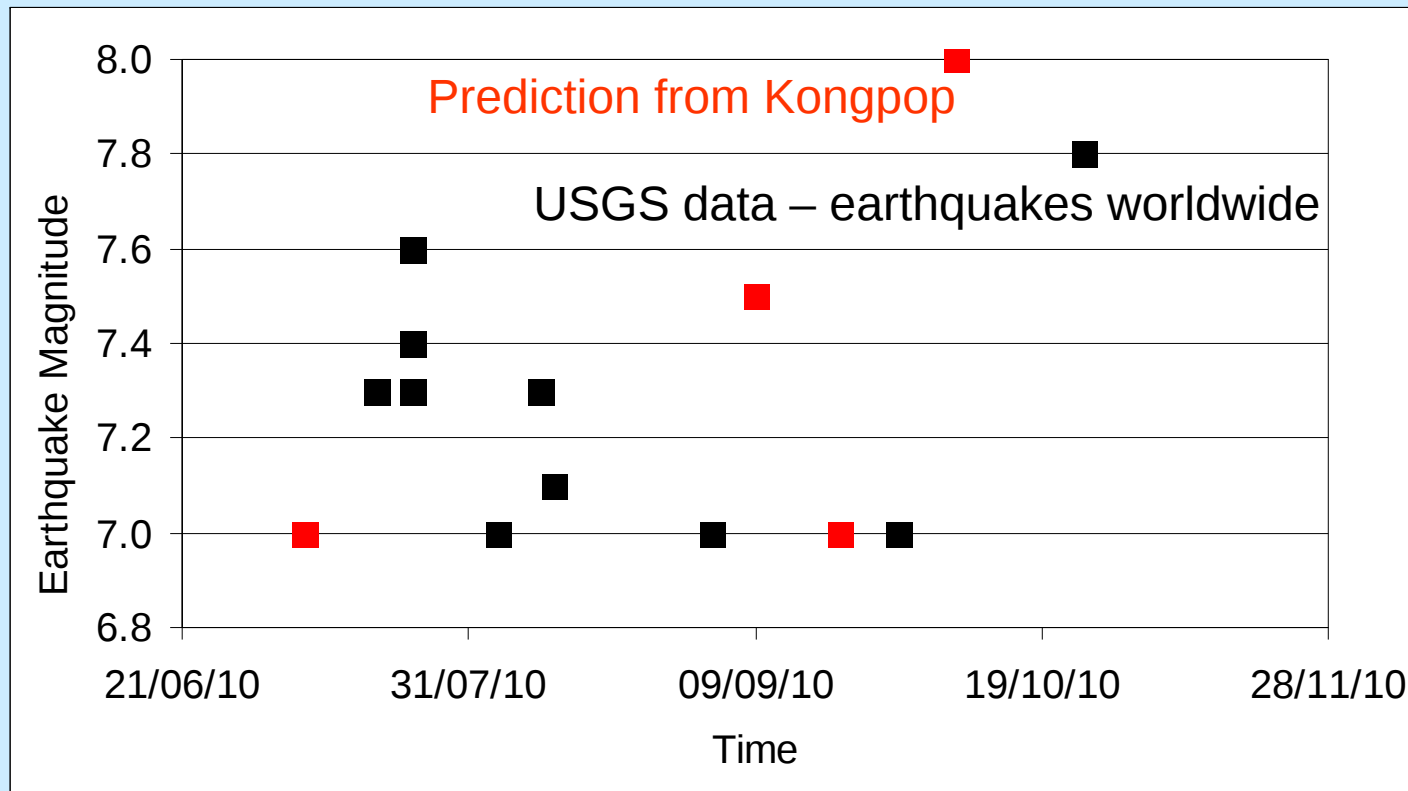
EARTHQUAKE Bigger earthquakes expected

Published on June 30, 2010

In an interview with Channel 3, Smith talked about the huge quakes predicted by Kongpop U-yen, a Thai engineer who works for the US National Aeronautics and Space Administration (Nasa).

He said Kongpop had sent him **dates between July and October** when he predicted that quakes of 7-9 **Richter-scale magnitude** would occur

'Prediction' versus Science



(USGS – United States Geological Survey)

... no correlation – as expected !

Astrologer sees tsunami, hotels suffer cancellations

Published: [10/12/2010](#) at 12:00 AM

Recent rumours that a new tsunami will strike Phuket, Phangnga, Ranong and Satun have led to the cancellation of about 10% of the room bookings for this high season.

Well-known astrologer Warin Buawiratlert foretold **the South will suffer another tsunami this month**. Some tourists are now worried, particularly Thais.

Apart from Mr Warin, **several fortune-tellers have forecast the same event.**

National Disaster Warning Center tells people not to panic about tsunami rumor

BANGKOK, 22 December 2010 (NNT) – The National Disaster Warning Center has reassured the public that the center follows the international standard warning procedures and that they shall be warned ahead of natural disasters.

Phuket Governor Reassures Tourists over Tsunami Tip

By Alan Morison

Thursday, December 23, 2010

(phuketwan.com)

FORTUNE TELLERS' predictions of a second tsunami have led the Governor of Phuket to take the unusual step of reassuring visitors by issuing a media release in English.

Governor Tri Augkaradacha says in the letter that all efforts are being made to ensure the safety of tourists. He writes: "Based on the most advanced technology, it is absolutely impossible to predict when and where a tsunami would strike.

Science in society

In a democracy

... everyone can say something to everything
(*“point of view”*) ... in the legal framework ...
... but is that reliable ? ... is that based on facts ?

Science

... is based on facts, using ALL facts, not selecting some, ... and then tries to make sense of it... but
always having doubts, being skeptical !

Who has the scientific authority for tsunami warning?

In Thailand the

National Disaster Warning Center (NDWC)

- has the scientific and legal authority
- established in 2005
- today under the ICT Ministry
- working 24/7/365
- responsible for (tsunami) early warning
- getting necessary data from other agencies (e.g. Seismological Bureau of the Thai Meteorological Department)
- making sense of all the data available and then if necessary issue tsunami warning, watch, or information

Scientific authority from credibility ?



20 July 2011

Smith Dharmasaroja, head of the National Disaster Warning Center, predicts that in 2100, Bangkok will have become a new “Atlantis.” This meteorologist’s analysis, as pessimistic as it may sound, is considered credible. In the 1990s he correctly forecast the devastating December 2004 tsunami.

(translation from French)

.... the 2004 tsunami forecasted ?

17 July 1998 Papua New Guinea Tsunami

Mw 7.0 earthquake caused a large undersea landslide,
Landslide triggered a tsunami that hit the coast,
More than 2200 people at one beach were killed.

- 
- Bangkok Post, 15 August 1998
Tsunami fear unfounded, say officials
 - The Nation, 18 August 1998
Phuket tourism sector decries tsunami warning
Smith (Dharmmasaroj) has reaffirmed his belief of the likelihood of a tsunami and personally informed Prime Minister Chuan Leekpai of the danger last Saturday.



This is an earthquake/tsunami hazard analysis !
– It is NOT a prediction or forecast !

Science as a fundament of our society

with “more” science

with more information

= more understanding !?

= more clearness !?

= more unambiguousness !?

also → more uncertainty

→ more open questions

we cannot forecasts earthquakes

when is the next tsunami?

→ → looking for credible sources (faces)
in the jungle of information

Our brain – a *belief engine*

Constant flow of information into the brain
– how to sort all this and give it a meaning ?

Brain tries to find a meaning = forming a belief

Trying to fit information to the belief to support it

It “likes” the belief – makes it more solid

- looks more for supporting evidence
- looks less for other explanations

↓
“**belief-dependent realism**” (Shermer 2011)

what we believe determines our reality

but

facts (reality) + **having doubts** determine our believe = Science

Superstition haunts forest

25/07/2011

.. three army helicopters crashing in just eight days...

"The guardian spirits here are very fierce," said one resident.

Kaeng Krachan National Park head Chaiwat Limlikhit-aksorn said he felt bad vibes were emanating from the forest

Natural resources permanent secretary Chote Trachoo attended a rite yesterday to present food offerings near Kaeng Krachan reservoir to ward off bad omens.

.. a forest ranger, said he did not believe in supernatural forces.



He knows the reality – this determines his believe = Science

Selected Bibliography

- Gili S. Drori, John W. Meyer, Francisco O. Ramirez and Evan Schofer (2003) Science in the Modern World Polity Institutionalization and Globalization. Stanford University Press.
- Wiebe E. Bijker, Roland Bal and Ruud Hendriks (2009) The Paradox of Scientific Authority. The Role of Scientific Advice in Democracies. The MIT Press.
- Shermer, M. (2011) The Believing Brain: From Ghosts and Gods to Politics and Conspiracies — How We Construct Beliefs and Reinforce Them as Truths. Times Book.

Thank you for your attention!

Do you believe now?