



IN2P3

institut national de physique nucléaire
et de physique des particules

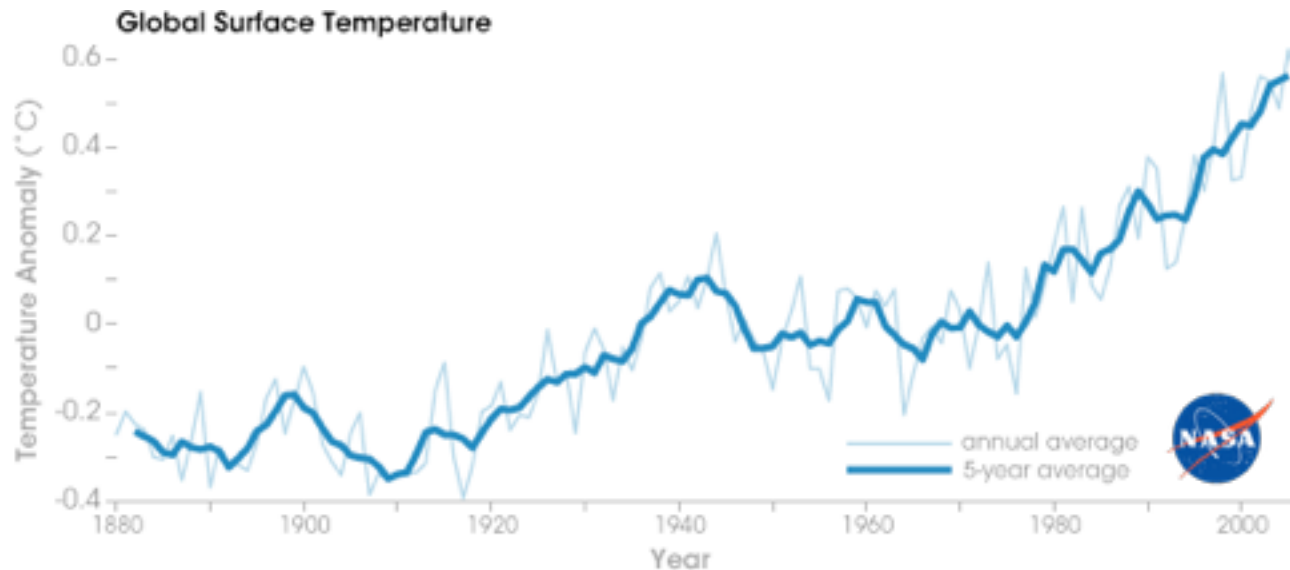
TIMECLEAN workshop



Time series analysis across disciplines

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Images, spectra, time series: tools for our science



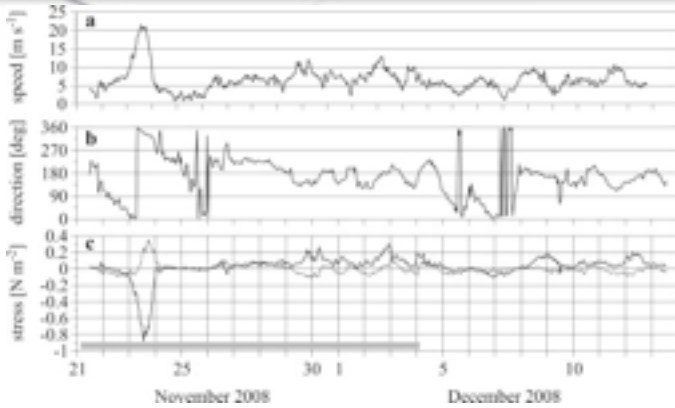
NASA graph adapted from Goddard Institute for Space Studies. ©NASA



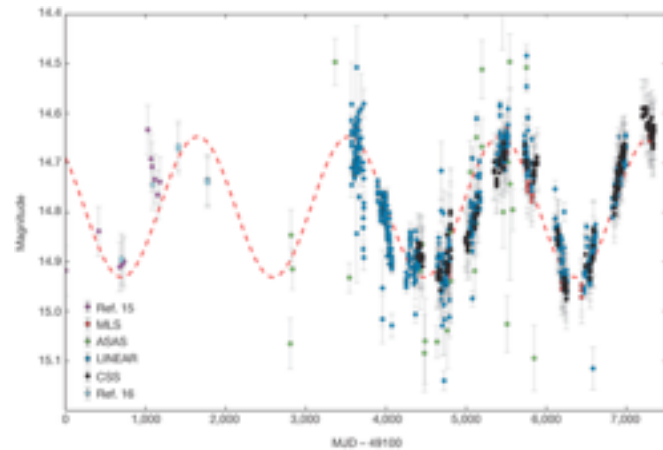
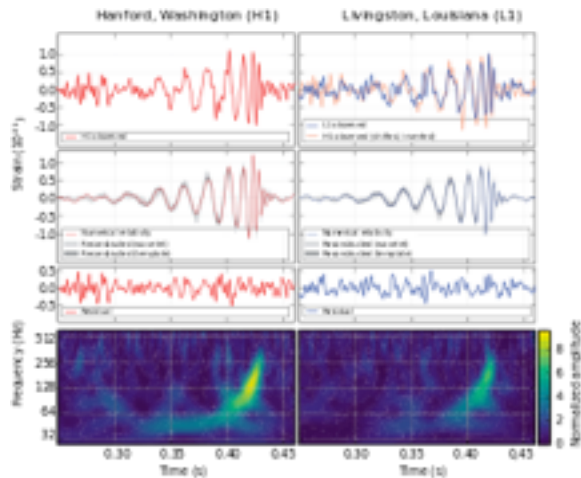
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Motivation



EEG



LIGO measurement of the gravitational waves at the Hanford (left) and Livingston (right) detectors, compared to the theoretical predicted values. Abbott et al. 2016

The composite light curve for PG 1302-102. Mathew et al. 2015

Similar questions to data:

- Trends
- Recurrent behaviour
- Correlations (cause and effect)
- Significance
- Big Data questions (new insights by combining apparently unrelated data)

Why is it so difficult to work together?

- Added value?
- Language
- Requirements (e.g. error propagation)
- Aim: what do I want to learn from the data (when, where)

Benefits

- New techniques and approaches
- New 'customers' and use cases
- New questions asked to your data → new insights
- Interdisciplinary → correlations

- Open Data
- Description of data (data management plan)
- Open Access to publications
- Exchange
- Means to process data

- Open Data:
EC, loi numerique (LOI n° 2016-1321 du 7 octobre 2016 pour une République numérique), ...
- Description of data (data management plan)
EC, IN2P3, ...
- Open Access to publications
Loi numerique, pre-print server, ...
- Exchange
This workshop, CNRS programs, ...
- Means to process data
Open Science

Thanks:

- Cécile Cavet for putting everything together
- Delphine Leyritt for helping with the organisation
- Themis Palpanas + team for hosting the workshop



And of course:

CNRS / MASTODONS program





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Tomorrow: 2 hands-on sessions

Gravitational Waves: see indico webpage for preparation

https://losc.ligo.org/s/events/GW150914/GW150914_tutorial.html

Python using Anaconda

Data: either download or (better) ask me for USB stick (143 Mbyte)

Wifi today:

Login : lipade1216

password: lipade1216

Slides will be available on the indico website

- Tomorrow: 45 rue des Saints-Pères
- Dinner: 19h *Péniche la Marina*, a boat at Bercy (metro 14, Cour Saint-Emillion), see map
- 48.8342156, 2.382284

