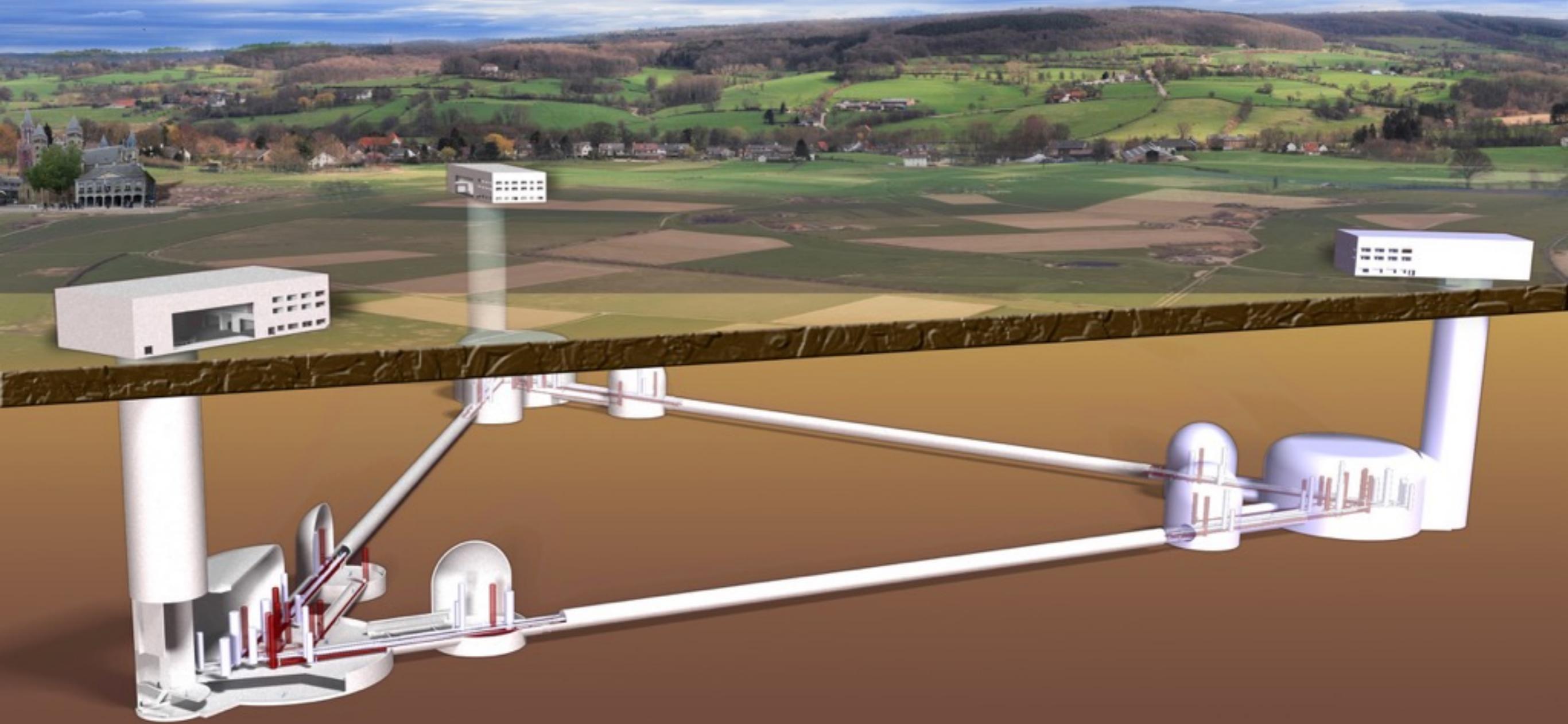
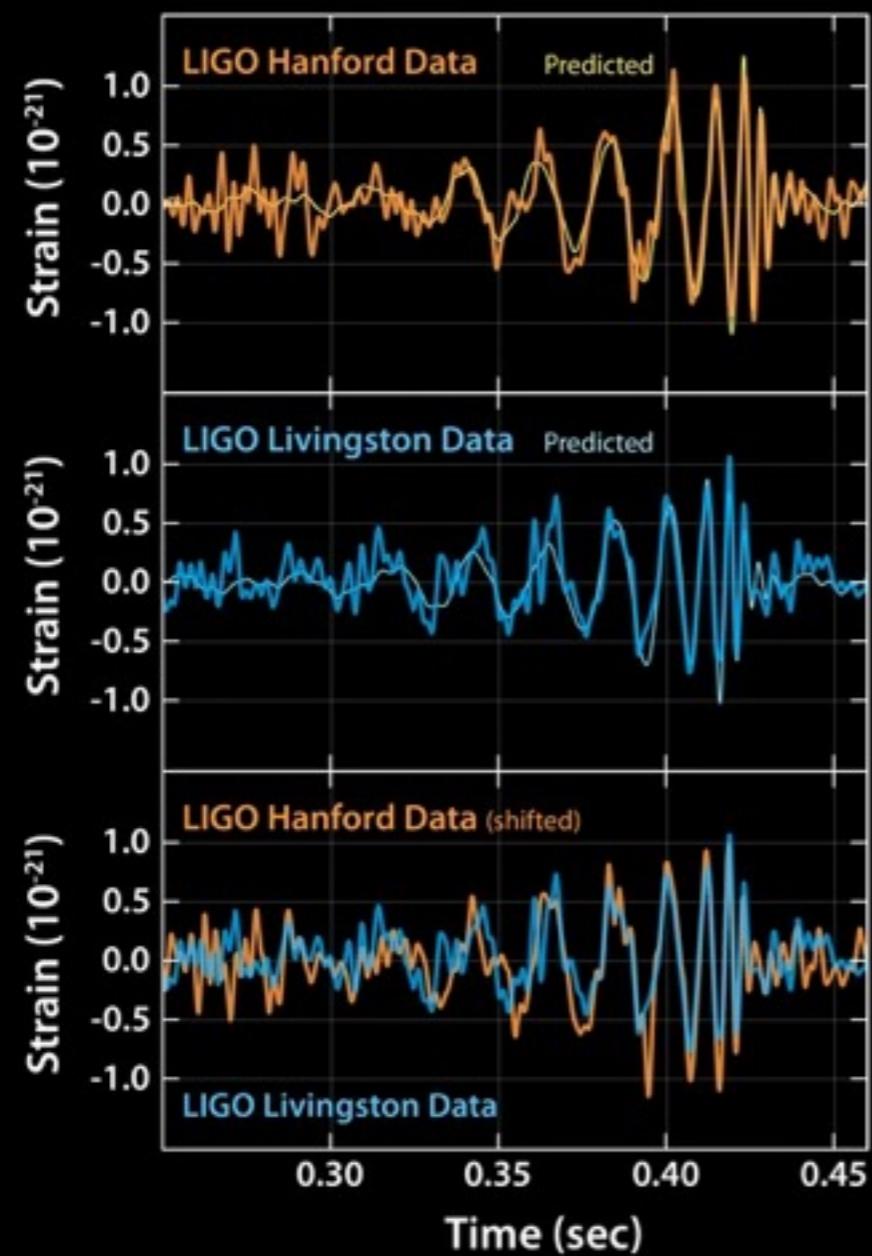


Einstein Telescope



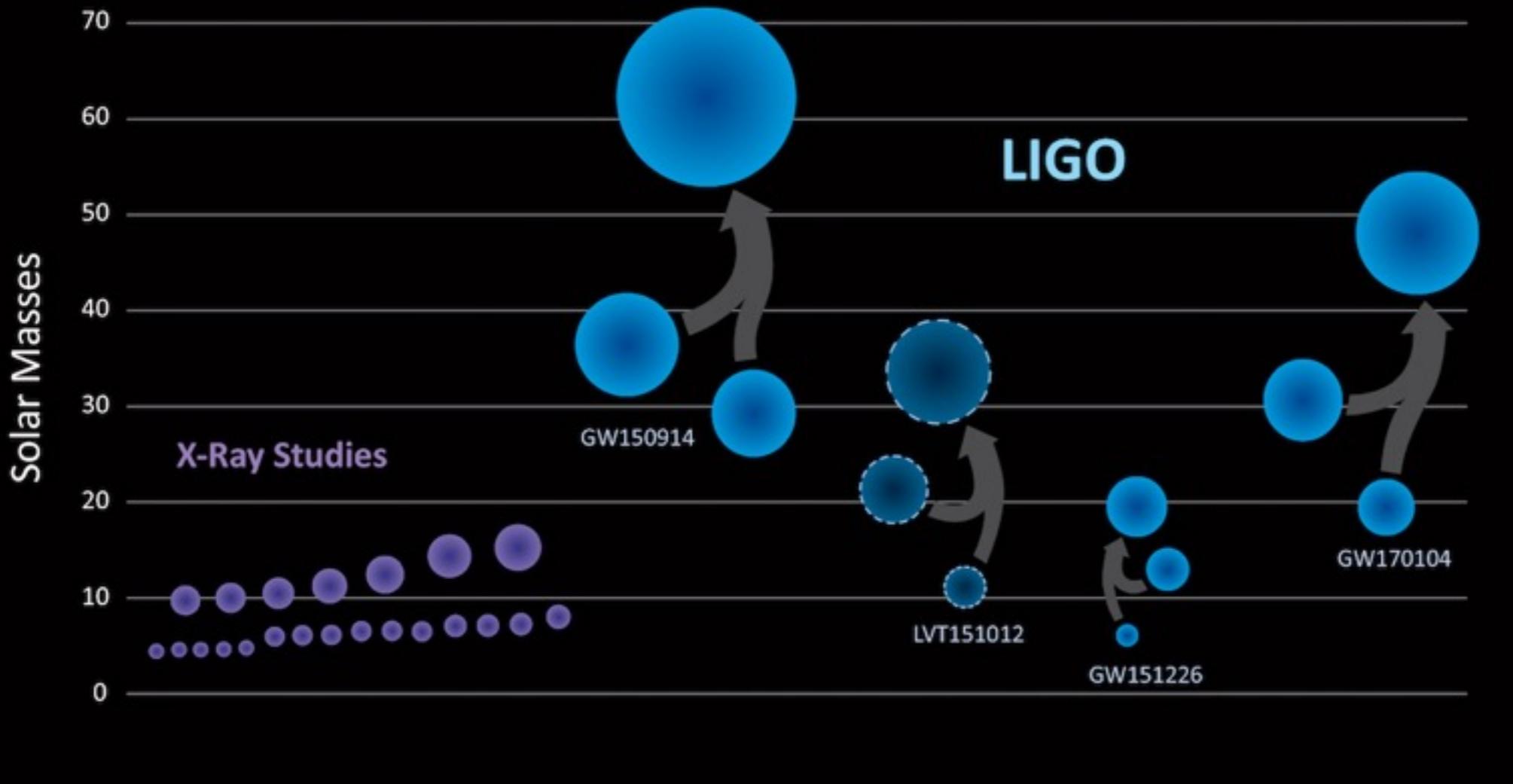
LIGO



14/09/15

Black Holes of Known Mass

~1 event/month



Operational
Under Construction
Planned

LIGO Hanford
LIGO Livingston

GEO600

VIRGO
On since August



KAGRA

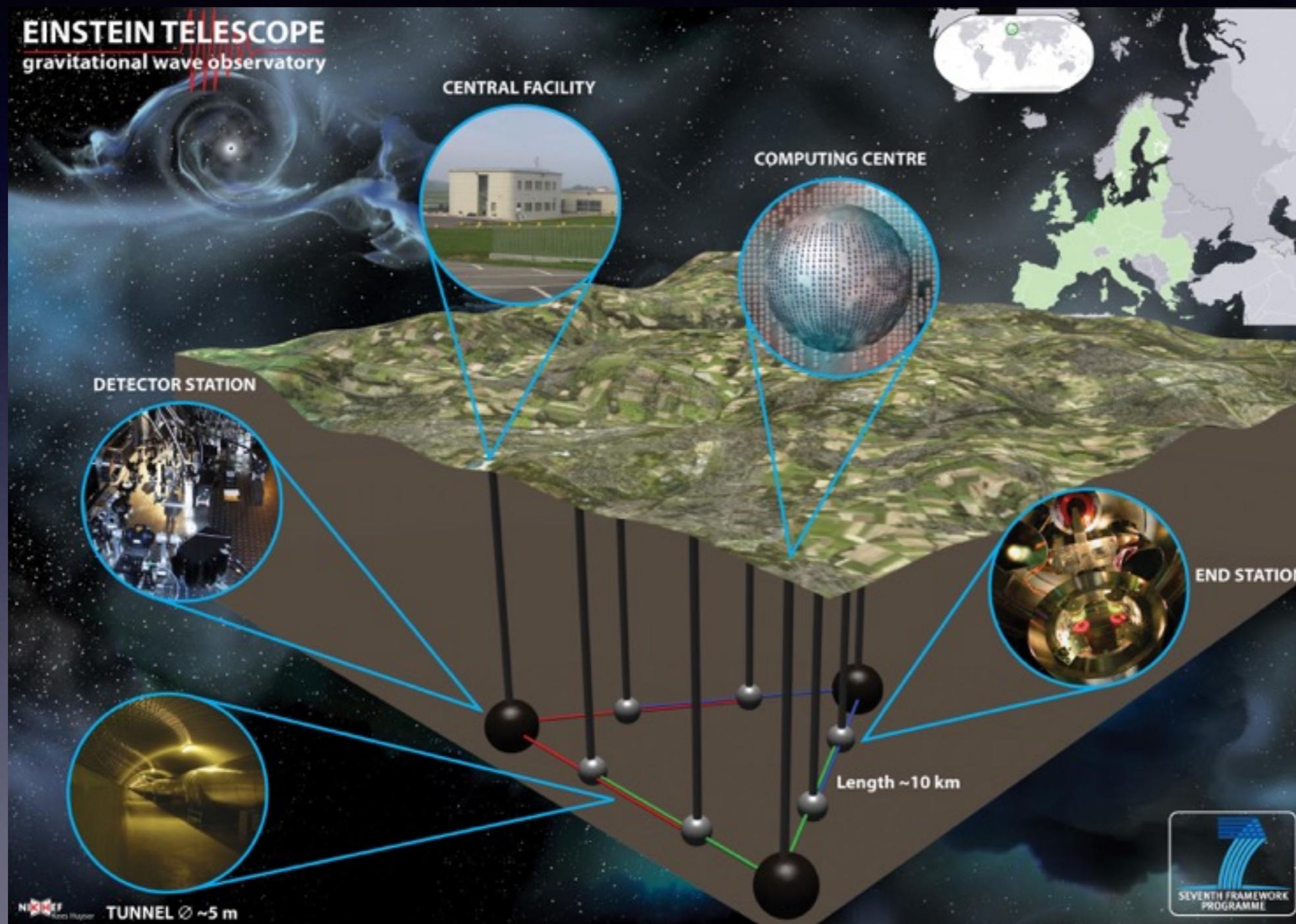
LIGO India

Gravitational Wave Observatories

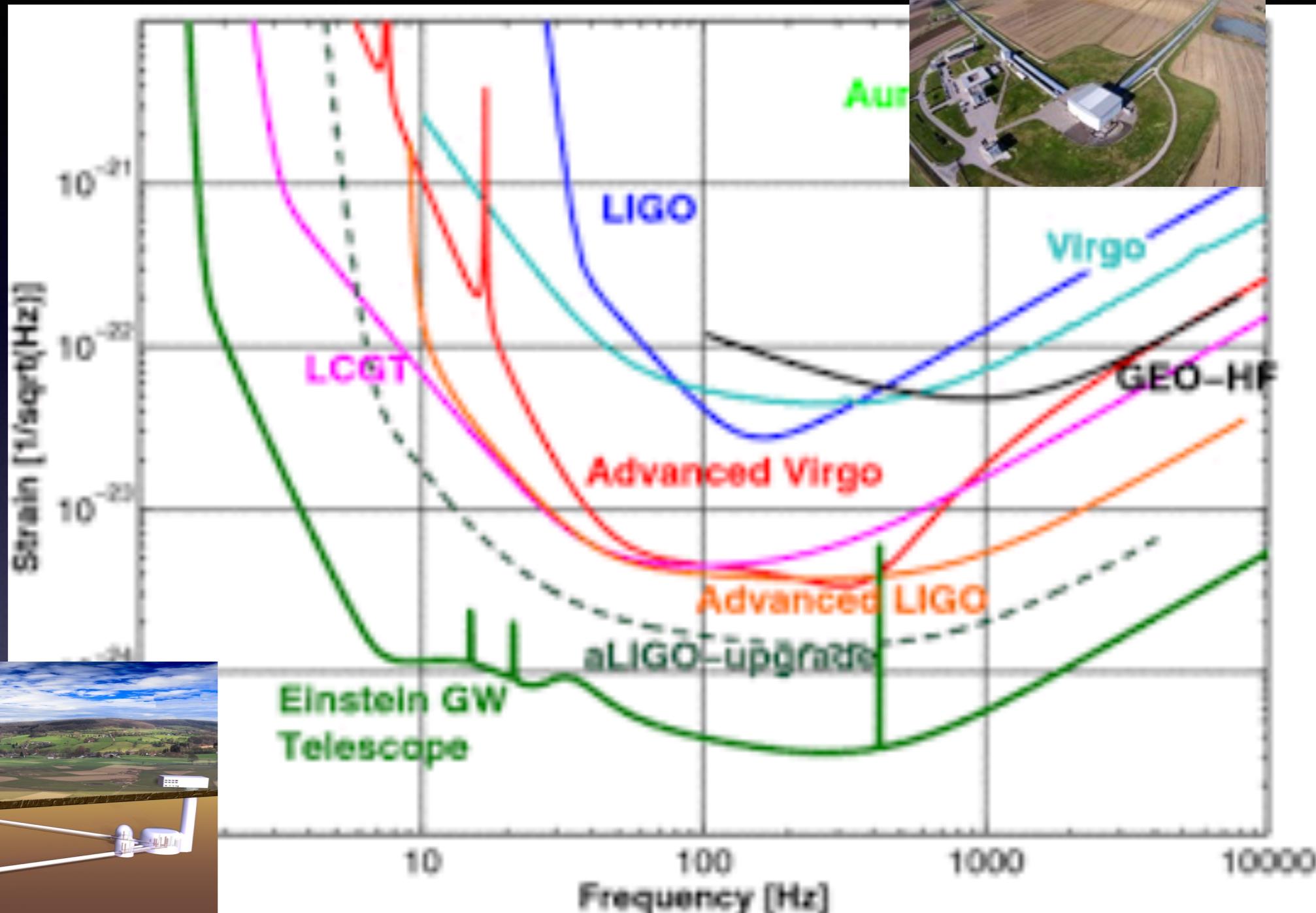
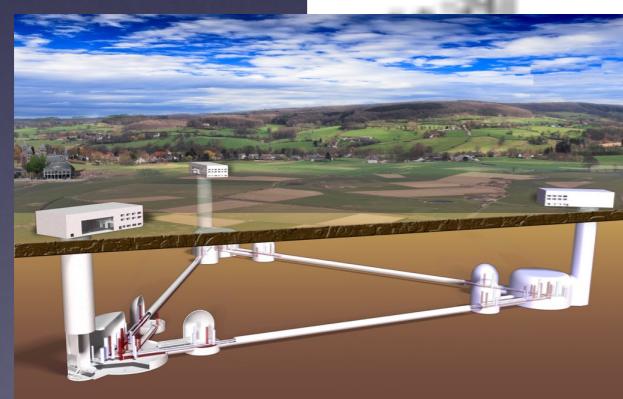
August 2017: GRB&NS-NS merger

- From Nature:
 - On 18 August, astronomer J. Craig Wheeler of the University of Texas at Austin began the public rumour mill when he tweeted, “**New LIGO. Source with optical counterpart.** Blow your sox off!”
 - An hour later, astronomer Peter Yoachim of the University of Washington in Seattle tweeted that LIGO had seen a signal with an optical counterpart **from a galaxy called NGC 4993, which is around 40 Mpc away in the southern constellation Hydra.** “Merging neutron-neutron star is the initial call”, he followed up.
 - Some astronomers who do not want to be identified say that rumours had been privately circulating before Wheeler’s and Yoachim’s tweets.
- LIGO site: “Some promising gravitational-wave candidates have been identified in data from **both LIGO and Virgo** during our preliminary analysis, and we have shared what we currently know with **astronomical observing partners.**”

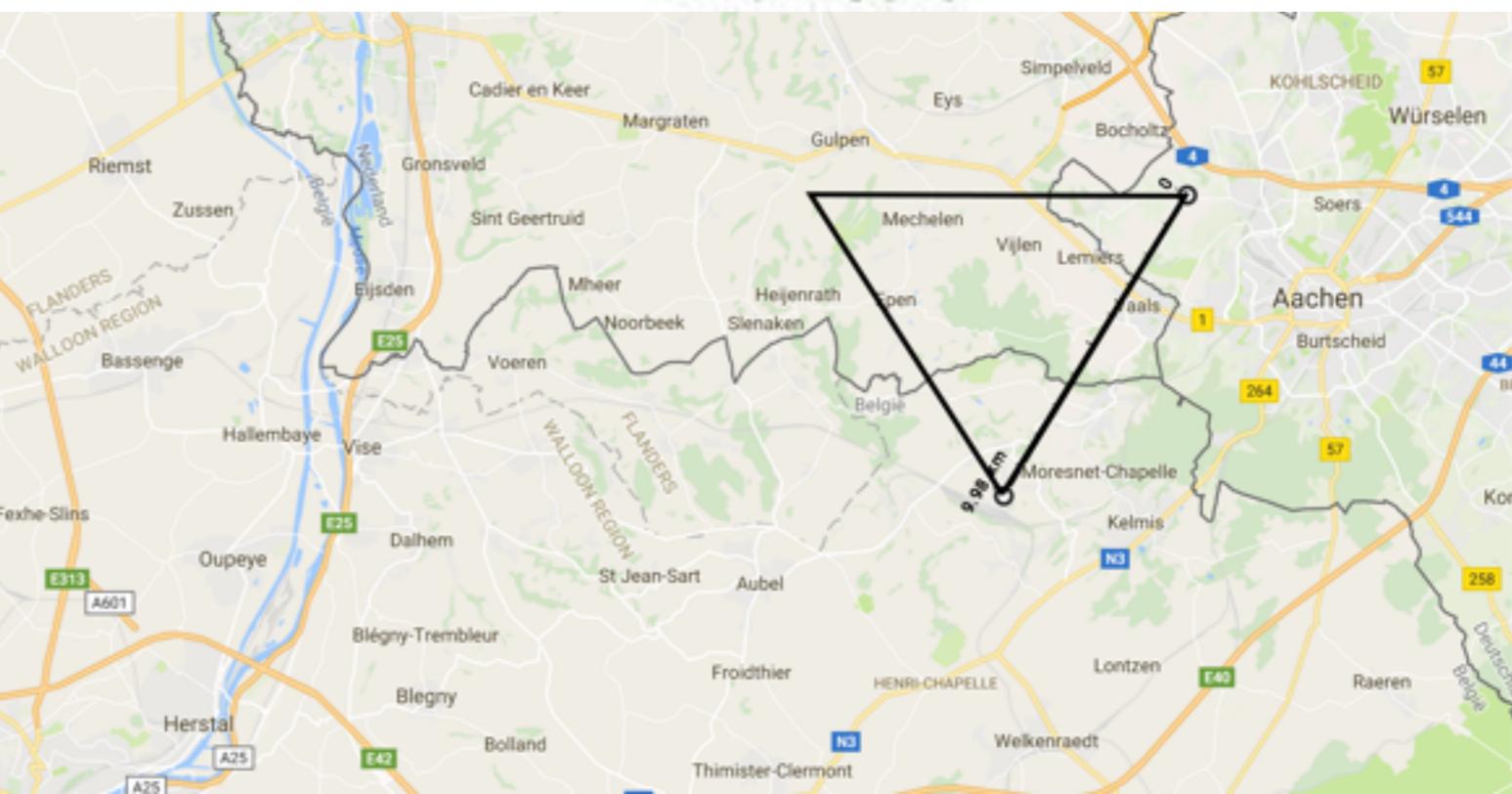
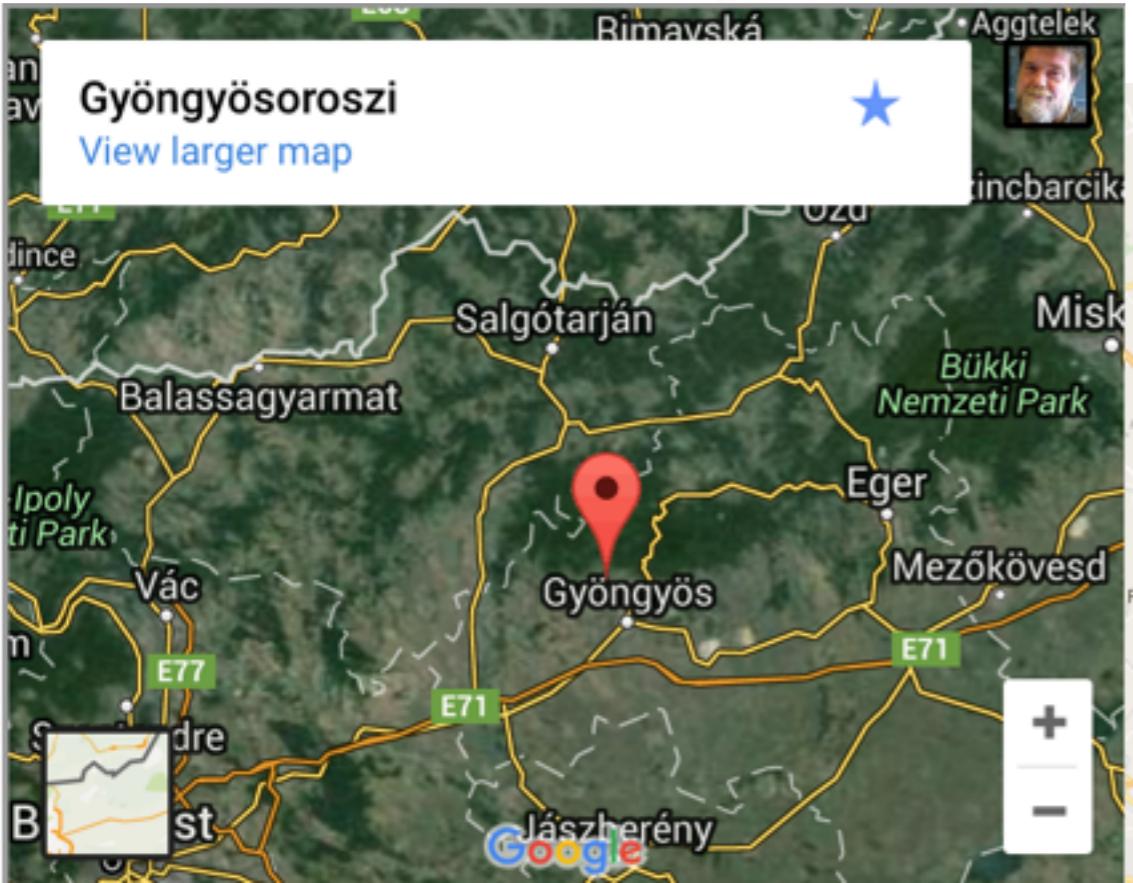
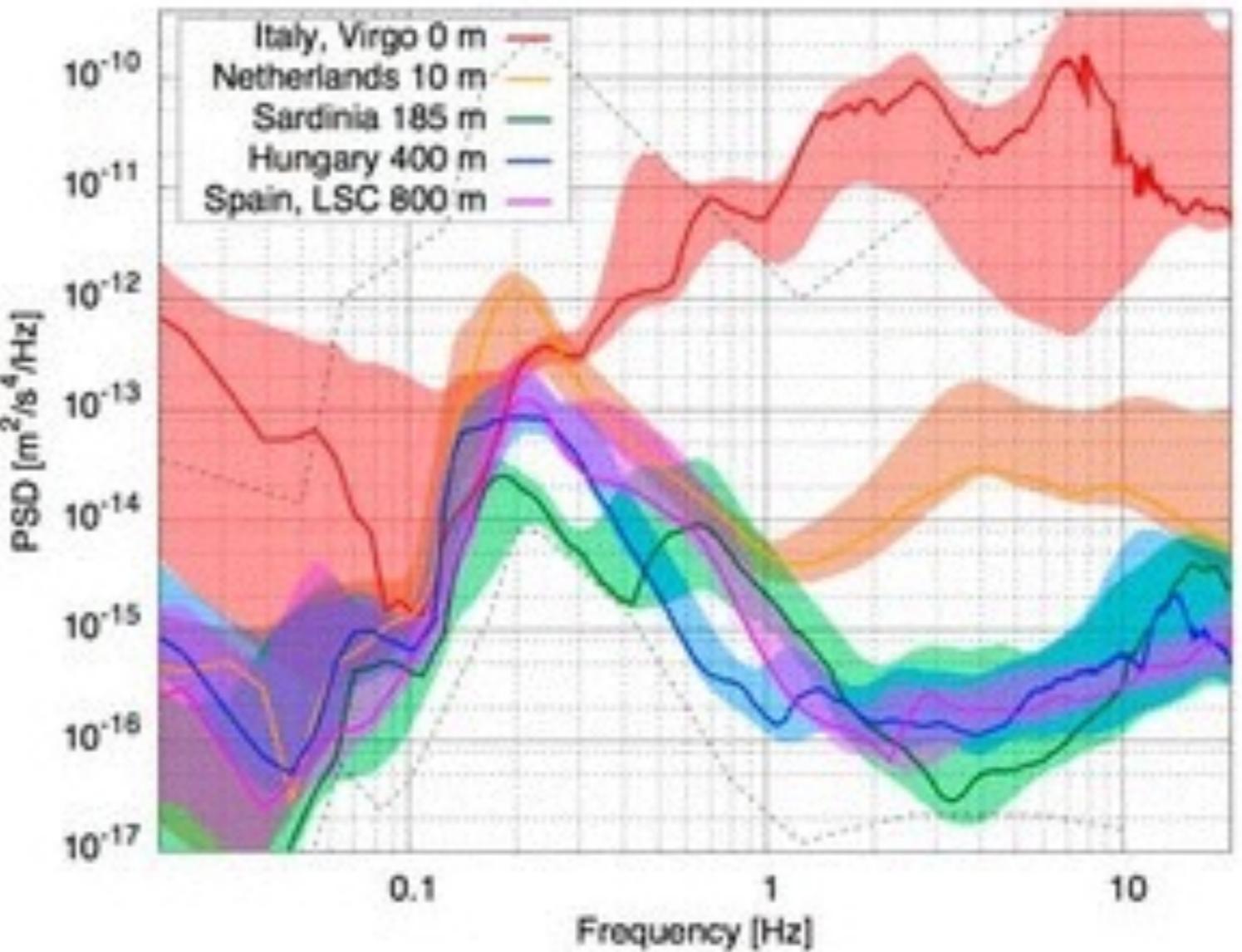
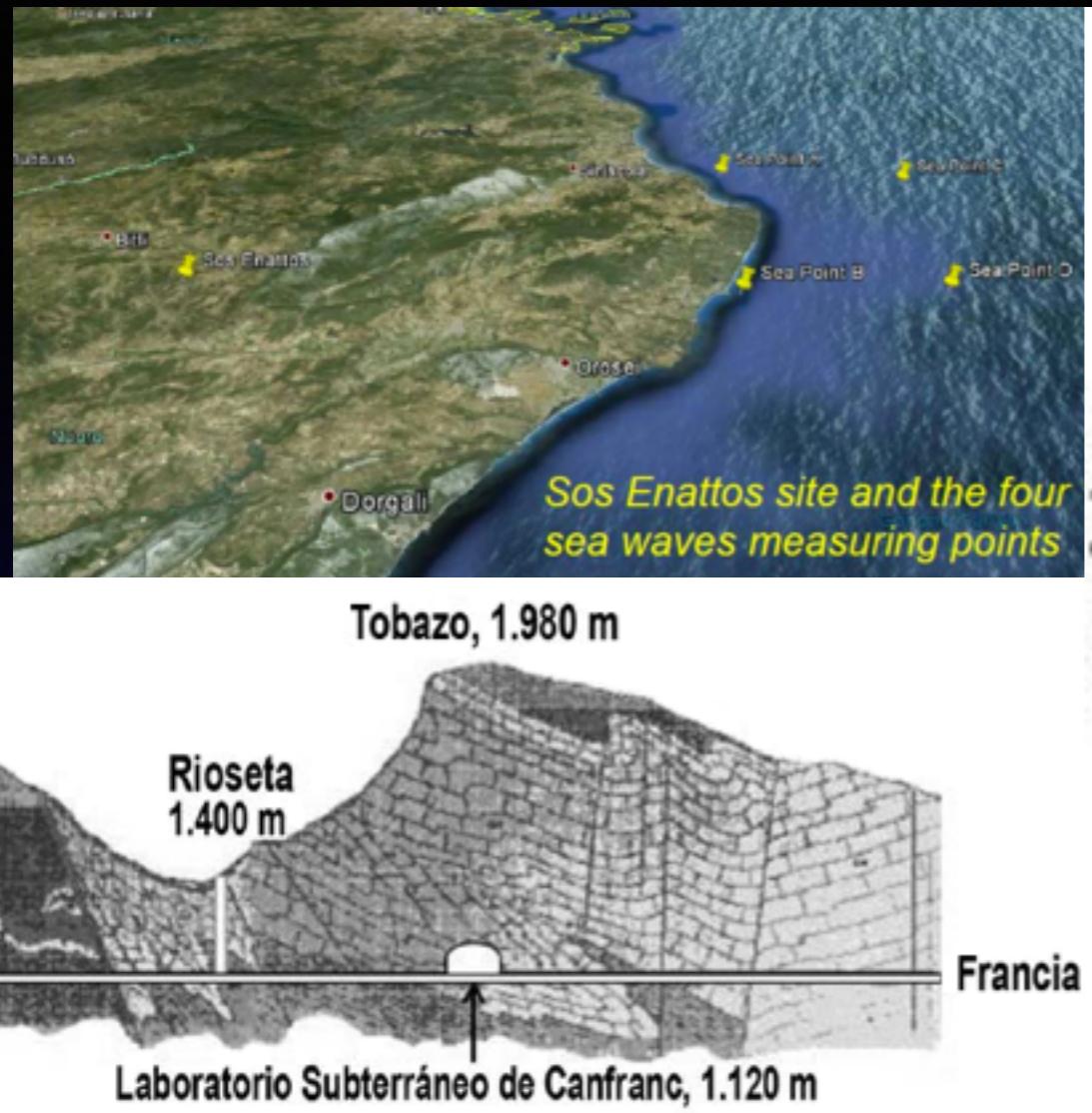
2030-: Einstein Telescope

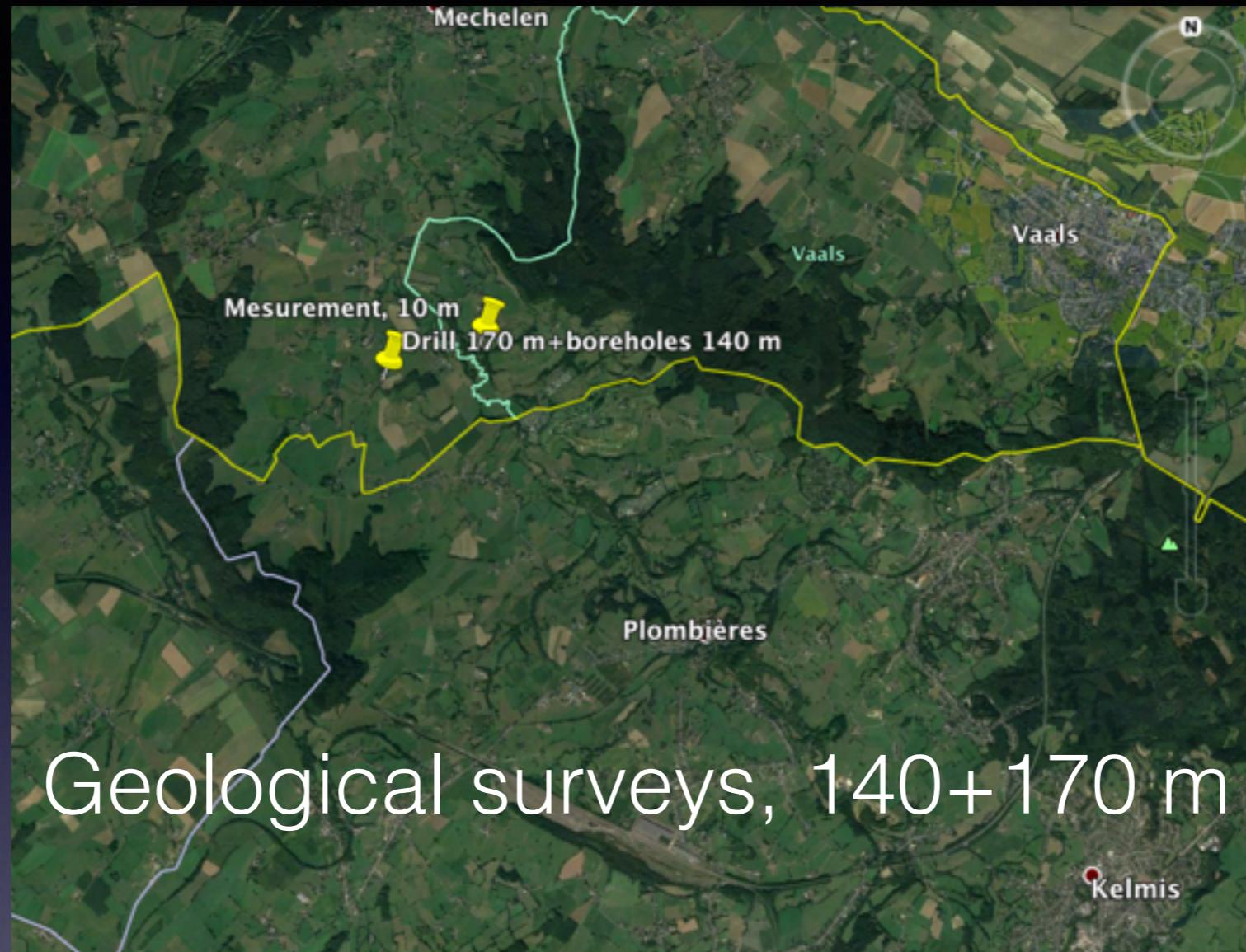


$z \sim 0.1$ (NS) $z \sim 1$ (BH) 1 event/month



$z \sim 2$ (NS) $z \sim 17$ (BH) 1000000 events/month





Later this year:

- ✿ First passive and active seismic studies.
- ✿ Then drilling to 320 m depth to place a seismometer at about 300 m depth.

Liège

- “support group”: 8 STAR, 2 CESAM, 1 GEO, 1 INGE
- “interest”
 - of various deans and vice rectors
 - of CSL
 - of local industry
- financial support from STAR

2018

*January 31: Liège conference on the Einstein Telescope

- Jo Van den Brandt (Nikhef), (spokesperson of the Virgo Collaboration.co-chair of ET design study)✓
- Frank Linde (GW group leader at Nikhef and deeply involved with ET in The Netherlands)
- Chris Van Den Broeck (Nikhef): expert on ET science case
- Michele Punturo (U. Perugia): chaired the ET design study in the past (and member of GWIC: GW International Committee)
- Harald Lueck (AEI, Hannover): co-chair of ET DS
- Matt Evans (MIT): 3G Cosmic Explorer