Today's visit

Virgo/EGO visit, June 13th 2017

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EGO EUROPEAN GRAVITATIONAL OBSERVATORY

Welcome!

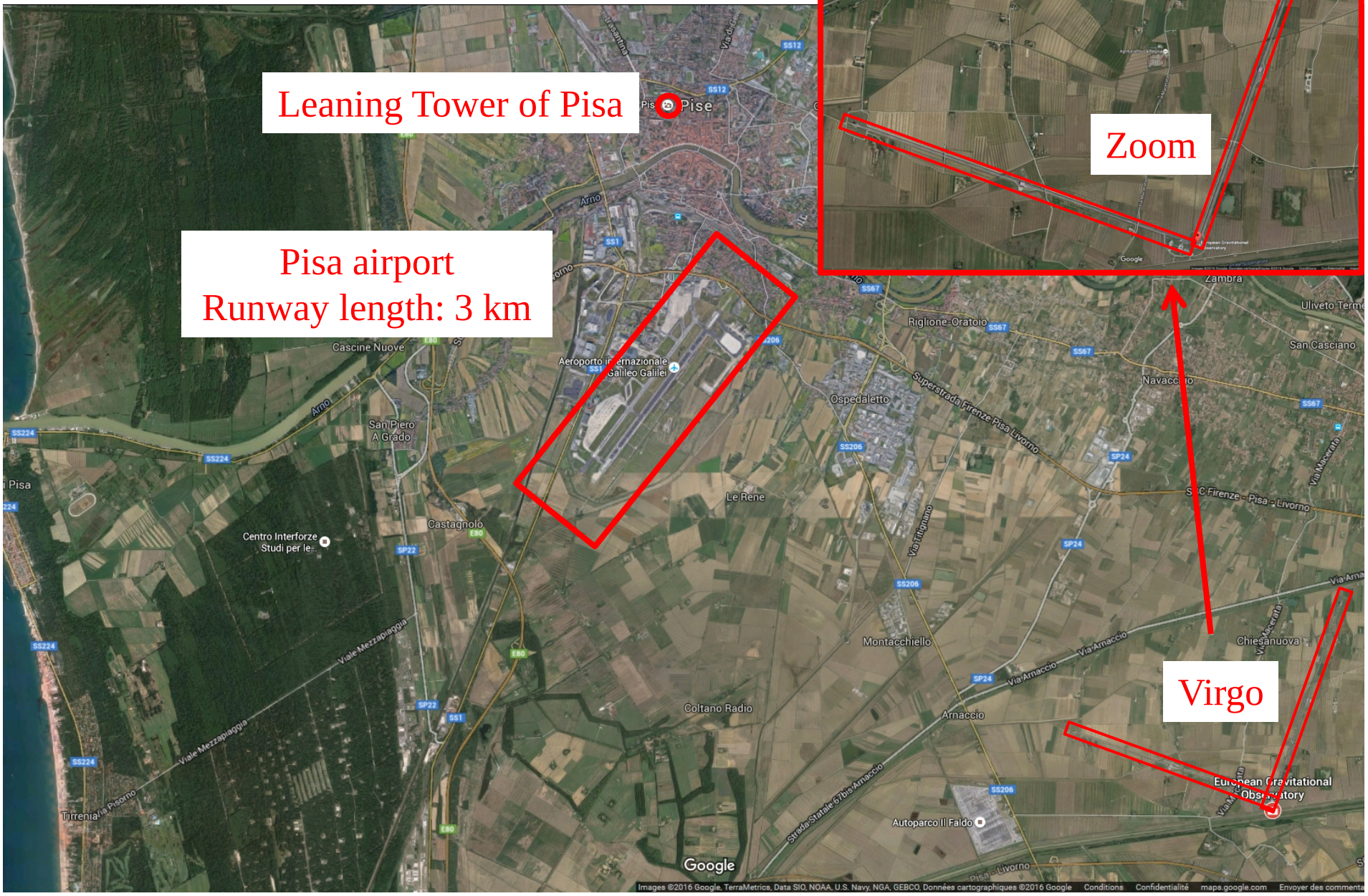
- Welcome to the European Gravitational Observatory (EGO)
  - Site of the Virgo experiment

- Virgo is a giant (3-km arms) suspended and recycled Michelson interferometer designed to make direct detections of gravitational wave (GW) signals

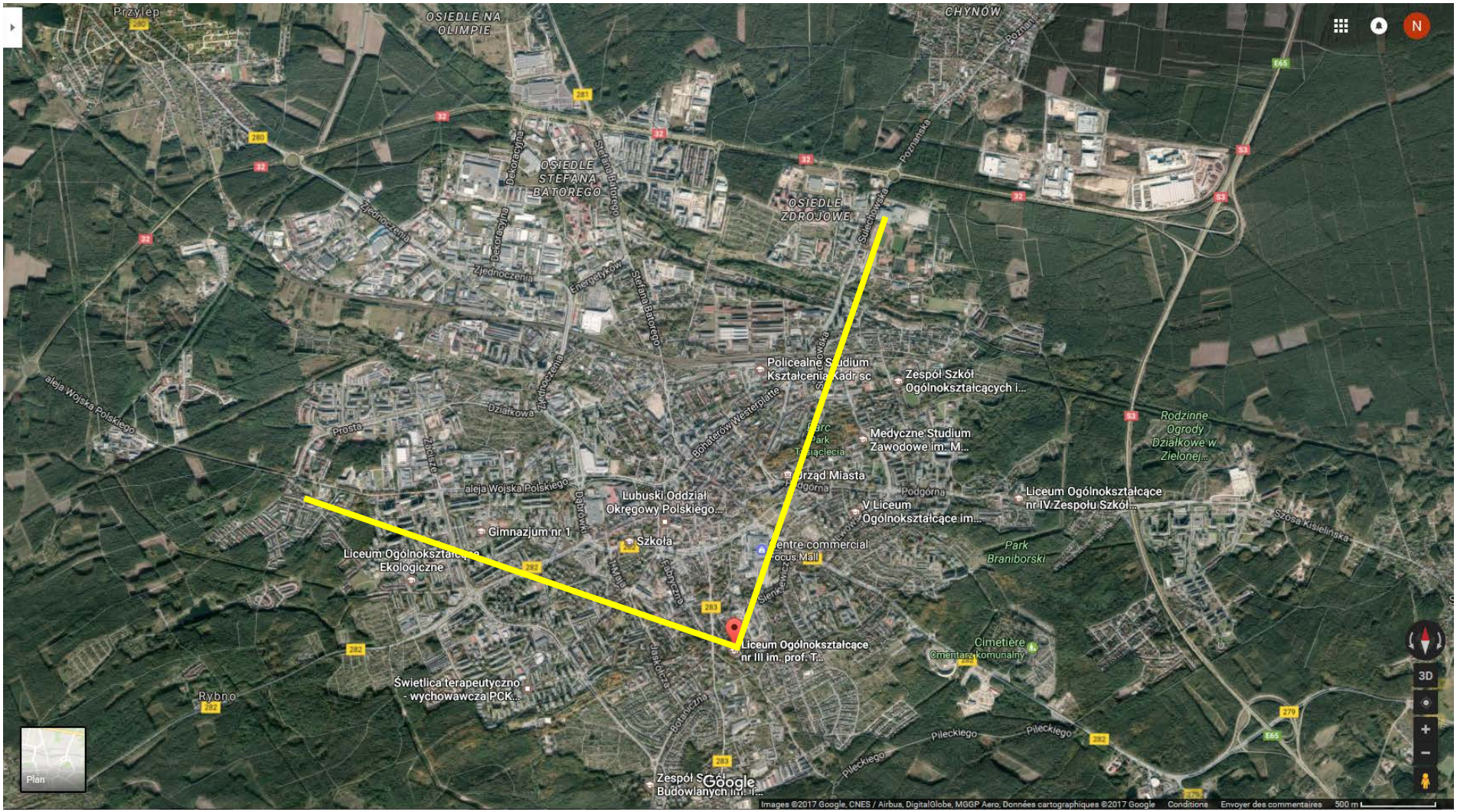
- Advanced Virgo (AdV) is the second generation Virgo detector
  - Commissioning in progress after a 5-year upgrade
  - Goal: improve the overall sensitivity by one order of magnitude

→ Next step: join the two Advanced LIGO (aLIGO) detectors in July 2017, for a first common data taking period

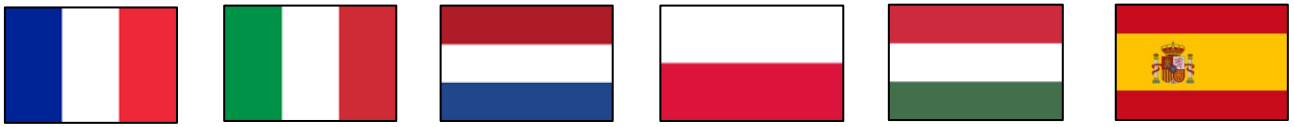
The Virgo site



Virgo at home…



The Virgo Collaboration

- 6 European countries 
- 21 laboratories
- About 300 members (LIGO : 750)

The Virgo Collaboration

- 6 European countries






- 21 laboratories
- About 300 members (LIGO: 750)
- Virgo was built by 11 CNRS (France) and INFN (Italy) laboratories
  - Budget: ~150 M€
  - Groups from the Netherlands, Poland, Hungary and Spain joined later the project
- Advanced Virgo funding: ~20 M€
  - Plus in-kind contribution from NIKHEF
- The EGO (European Gravitational Observatory) consortium is managing the Virgo site in Cascina. It provides the infrastructures and ressources to ensure the detector construction and operation

APC Paris
ARTEMIS Nice
EGO Cascina
INFN Firenze-Urbino
INFN Genova
INFN Napoli
INFN Perugia
INFN Pisa
INFN Roma La Sapienza
INFN Roma Tor Vergata
INFN Padova
INFN TIFPA
LAL Orsay – ESPCI Paris
LAPP Annecy
LKB Paris
LMA Lyon
NIKHEF Amsterdam
POLGRAW (Poland)
RADBOUD Uni. Nijmegen
RMKI Budapest
Valence University

A bit of history

- 1980's: Collaboration between Alain Brillet (CNRS, Orsay, lasers) and Adalberto Giazotto (INFN, Pisa, suspensions)
- 1989: Proposal
- June 27 1994: Project approved by CNRS and INFN
- May 1997: Final design report
- 2003: End of construction phase
- 2007-2010: Data taking periods
  - Virgo first, then Virgo+

- 2011-2016: Upgrade to Advanced Virgo
  - 2015: first direct detections of gravitational waves
    → Data recorded by the two Advanced LIGO detectors
    → Jointly analyzed by LIGO and Virgo
- 2017: First joint Advanced LIGO – Advanced Virgo data taking period [!!!???]

Virgo from the sky