LAND SUBSIDENCE IN LISBON AREA: VALIDATION OF PSINSAR RESULTS

Maria João HENRIQUES
José Nuno LIMA
Malva MANCUSO
LNEC - National Laboratory for Civil Engineering

Ana Paula FALCÃO
Sandra HELENO
IST – Engineering School

TERRAFIRMA Project

> Terrafirma – an ESA GMES project: explores the power of satellite radar interferometry to detect and measure Earth-surface terrain motion.
  > 1st stage: 14 cities from across Europe were processed (inc. Lisbon)

> In the paper will be presented the results of a validation study made in an area of Lisbon that presented high values of subsidence
Lisbon area

PSINSAR - results

processing
≈100 images
(1993 to 2006)

reference point: IST
Laranjeiras / Luz / Cidade Universitária / Campo Grande

Benchmarks (Est. Laranjeiras/Luz)

-6 mm/year
-4 mm/year
-2 mm/year
Vertical displacements in 2009 (reference 1995)

Laranjeiras line

GNSS vertical displacements (2005 to 2007)
Conclusion

In Laranjeiras / Campo Grande area, the subsidence detected by PSInSAR was confirmed with the methods of Applied Geodesy: GNSS and levelling.

Thank you for your attention