

On the use of transponders for InSAR geodesy



WORKSHOP

21 May 2015 | 15:00 CEST

Lecture Room E

Faculty of Civil Engineering
and Geosciences (CiTG)

Delft University of
Technology (TU Delft)

The Netherlands

WEBINAR

21 May 2015 | 15:00 CEST

Streaming and on-demand

Webinar link:

<http://goo.gl/vzIDPr>

Registration and seed questions:

<http://goo.gl/forms/OaQOA1Guoa>

PROGRAMME

15:00	Introductory address	Ramon Hanssen, TU Delft
15:15	State-of-the-art and results	Pooja Mahapatra, TU Delft
15:30	Practical aspects and 'lessons learnt'	Hans van der Marel, TU Delft
15:35	Potential for applications in cadastre and survey	Lennard Huisman, Dutch Cadastre
15:40	Potential for geophysical applications	Tim Dixon, Univ. of South Florida
15:45	Status and roadmap for transponder development	Alan Fromberg, Thales Alenia Space
16:15	Discussion, Q&A	Participants both live and online

On the use of transponders for InSAR geodesy

All InSAR applications require coherent phase information. Although approaches exist to extract information from low-coherence areas, there are always cases where coherence is too low. In such cases, installing coherent targets is an option. Corner reflectors are frequently used for this purpose, but their size and vulnerability for multi-year time series are a drawback. In this workshop we discuss the viability of using small, low-cost transponders as coherent targets.

TU Delft has been experimenting with transponders over the last 5 years, at various locations and for various geodetic purposes. These include their use to make InSAR measurements 'absolute' instead of relative, coupling InSAR results to national and international cadastral and ordnance survey data, and densifying networks of coherent scatterers when needed. C-band transponders manufactured by Thales Alenia Space were used for this purpose, applied on ERS-2, Envisat, Radarsat-2, and Sentinel-1a data. In this workshop/webinar, we will report on the results of these efforts, and aim to answer questions such as:

For which applications can transponders be used? What is the precision and reliability of the phase observations? How much power do they consume? What is their visibility in radar imagery? Can the output power levels be adjusted? Are they available off-the-shelf, and at what cost? Are they available for multiple radar wavelengths? When should one deploy a transponder rather than a corner reflector? Which potential applications can be served? What additional research and industrial efforts are needed? Is their performance temperature-dependent? What is their applicability in low-temperature (e.g. polar) regions? Do they require radio licenses?

The workshop will be broadcast live as webinar to allow geodesists and InSAR experts over the world to join. The web address is <http://goo.gl/vzIDPr>. This includes the possibility to interact and ask questions to the presenters via chat.

One additional goal of the workshop/webinar is to assess the interest for mass production of transponders, to reduce their price and increase applicability. For this reason, the audience is requested to reflect on the potential volumes and requirements needed for specific applications.

For registration, please visit <http://goo.gl/forms/OaQOA1Guoa>

Here you can also inform us of any further topics you would like discuss during the workshop/webinar.