

# CTBT/OSI regime and GNSS application

November 5 to 9, 2012  
ICG-7, BICC, Beijing, China

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## CTBT/OSI regime and GNSS application

- ❖ Overview of Comprehensive Nuclear Test Ban Treaty (CTBT)
- ❖ On-Site Inspection (OSI) regime of the CTBT and its fundamental technologies
- ❖ Potential application of GNSS to the OSI

# Overview of Comprehensive Nuclear Test Ban Treaty (CTBT)

# Overview of Comprehensive Nuclear Test Ban Treaty (CTBT)



preparatory commission for the  
comprehensive nuclear-test-ban  
treaty organization

- ❖ 2054 nuclear tests carried out
- ❖ Prohibition of all nuclear explosions worldwide
- ❖ 24/09/96: Treaty opened for signature
- ❖ 183 States signed, 157 States ratified, 36 of 44 Annex II States ratified
- ❖ Treaty has not entered into force, however "de facto" norm against nuclear tests established



# Overview of Comprehensive Nuclear Test Ban Treaty (CTBT)



- ❖ Headquarters in Vienna
- ❖ Preparatory Commission set up in 1996
- ❖ Around 250 staff from 71 States Signatories
- ❖ Executive Secretary: Tibor Tóth/HUN
- ❖ Homepage: [www.ctbto.org](http://www.ctbto.org)



# Overview of Comprehensive Nuclear Test Ban Treaty (CTBT)



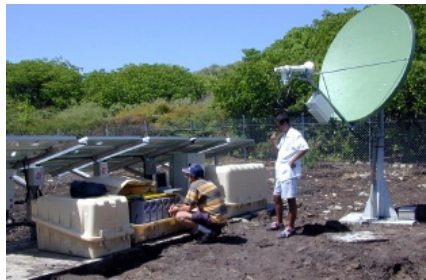
preparatory commission for the  
comprehensive nuclear-test-ban  
treaty organization

## *CTBT Verification Regime*

### *International Monitoring System*

*321 stations:  
seismic,  
hydro-acoustic,  
infrasound,  
radionuclide*

*IDC&GCI*



### *Consultation and Clarification*

*Right to clarify  
matters indicating  
possible  
non-compliance*



### *On-Site Inspection*

*Conduct of  
on-site  
verification  
activities*



### *Confidence Building Measures*

*Large chemical  
Explosions:  
prevent  
misinterpretation  
and  
calibrate seismic  
IMS component*



# **On-Site Inspection (OSI) regime of the CTBT and its fundamental technologies**

## On-Site Inspection (OSI) regime of the CTBT and its fundamental technologies



### CTBT, Article IV, Paragraph 35

*“The sole purpose of an on-site inspection shall be to clarify whether a nuclear weapon test explosion or any other nuclear explosion has been carried out in violation of Article I and, to the extent possible, to gather any facts which might assist in identifying any possible violator.”*



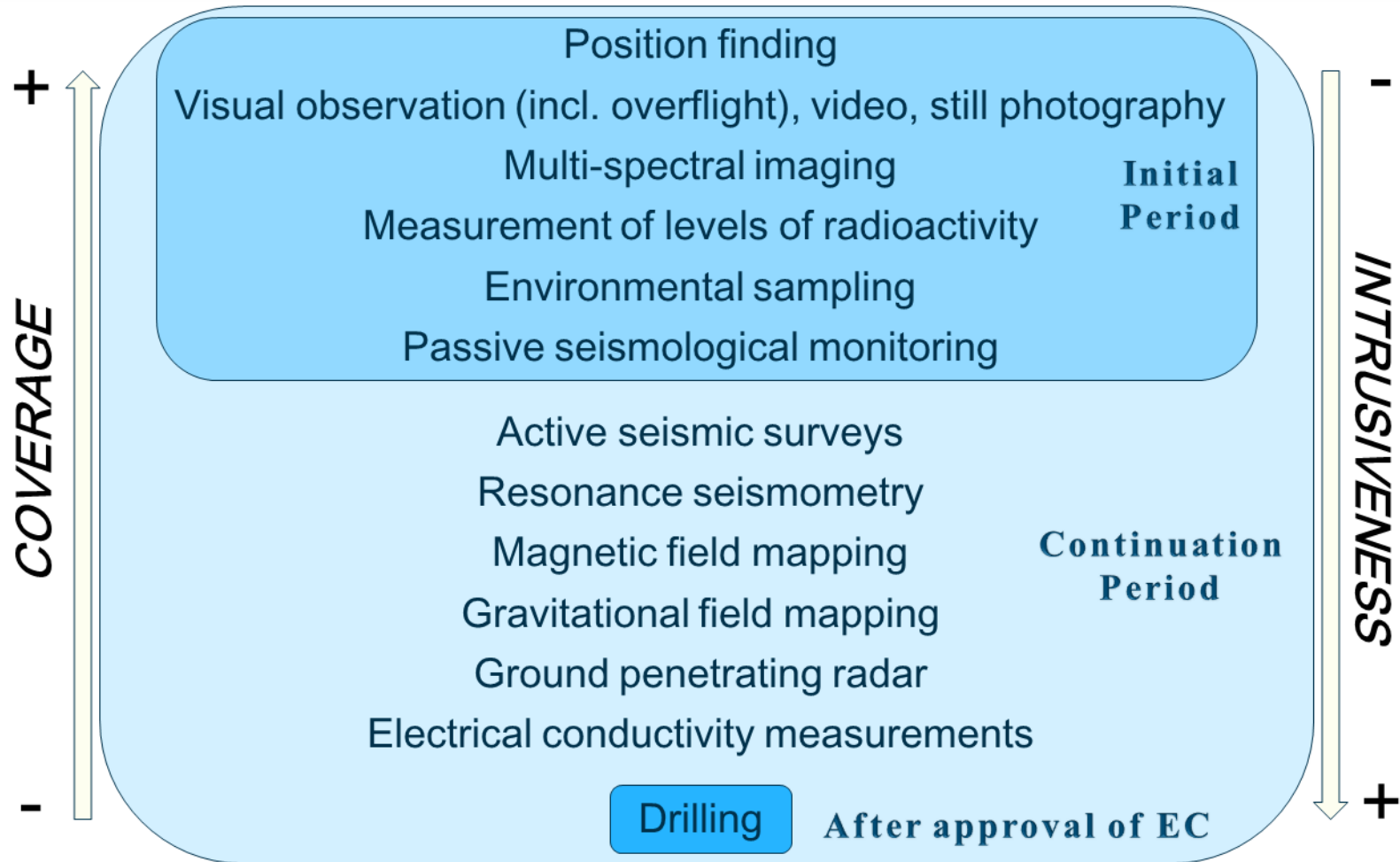
# On-Site Inspection (OSI) regime of the CTBT and its fundamental technologies



## On-Site Inspection Phases



# On-Site Inspection (OSI) regime of the CTBT and its fundamental technologies



*GNSS has its potential application to almost every OSI technology*

# Potential application of GNSS to the OSI

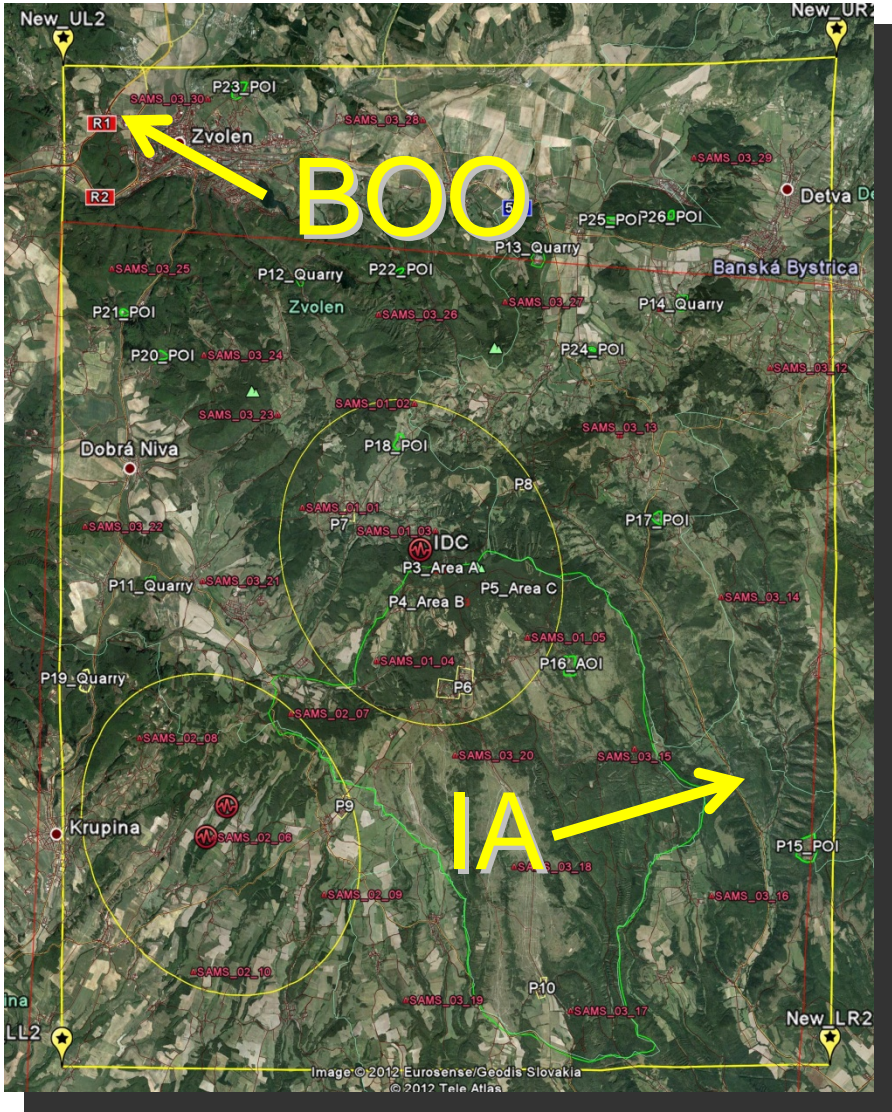
# Potential application of GNSS to the OSI



***Orientation/Navigation  
in the Inspection Area  
(Inspection Area is up to 1000 Km<sup>2</sup>)***

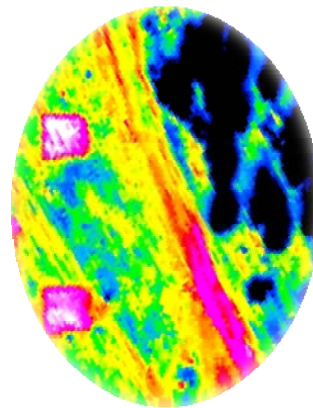
# Potential application of GNSS to the OSI

*Confirmation of location and boundaries*



# Potential application of GNSS to the OSI

## *Geo-referenced data support to OSI technologies*



**OSI GIS**



**Multi-spectrum imaging**



**Seismic After-shock Monitoring**



# Potential application of GNSS to the OSI

## *Geo-referenced data support to OSI activities (continued)*



**Radioactivity measurement**



**Visual Observation**



**Over-flight**



**Geophysics measurement**



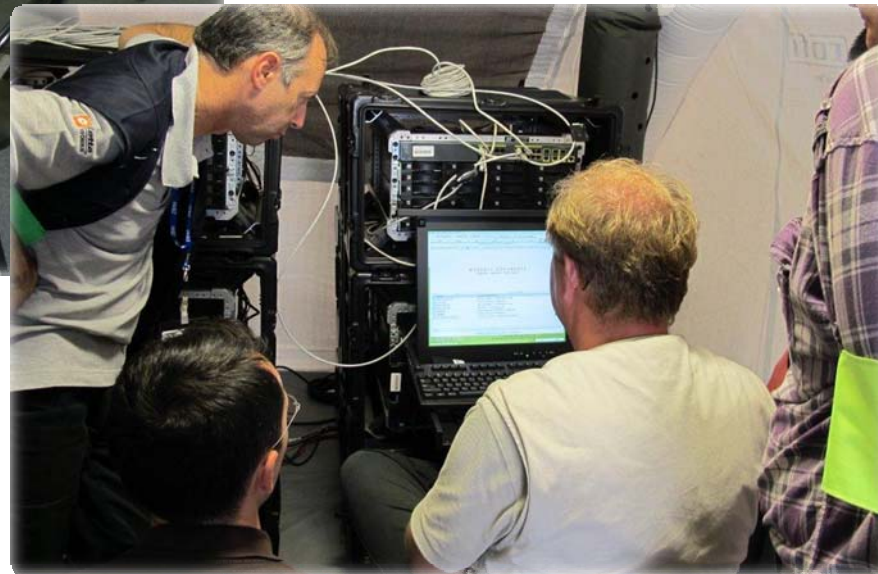
**Environmental Sampling**

# Potential application of GNSS to the OSI



*GNSS timing  
support to OSI  
equipment*

**OSI Integrated Information  
Management System**





### *Brief Summary*

- ❖ Positioning, navigation and timing have their wide application in CTBT/OSI.
- ❖ GNSS is the primary position finding technology now for CTBT/OSI. However, no specific system is primary, CTBT/OSI will utilize what is available to cover the Inspection Areas anywhere in the world upon approval.



## *Brief Summary*

*(Continued)*

- ❖ ICG can be a good opportunity for the CTBT/OSI to learn the experience of the application of GNSS.



*Thank you for your attention!*

