



# **Expanding The Benefit of International Monitoring System for Indonesia Multihazard Monitoring**

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- **Signed the agreement** on 24 September 1996
- **Ratified** it on 6 February 2012
- **Hosting** 6 (six) CTBT auxiliary seismic station
- **Signed Tsunami Warning Arrangement** 10 November 2008
- **Established Indonesian Tsunami Early Warning System (Ina TEWS)** on 11 November 2008 and have a role as NTWC, AEIC and TSP and NDC
- **contributes actively to regional** (Southeast Asian Nuclear Weapons Free Zone /SEANWFZ) agreement **and international security and peace**, in accordance with key norms in the field of nuclear non-proliferation and disarmament.



"I am determined to ensure that Indonesia's decision today will create momentum to encourage others who are still holding out to do the right thing. And the only right thing is to ratify the CTBT now, no more procrastination, no more delaying because it is right, it is proper and it makes a more secure world"

*Indonesian Foreign Minister Marty  
Natalegawa*

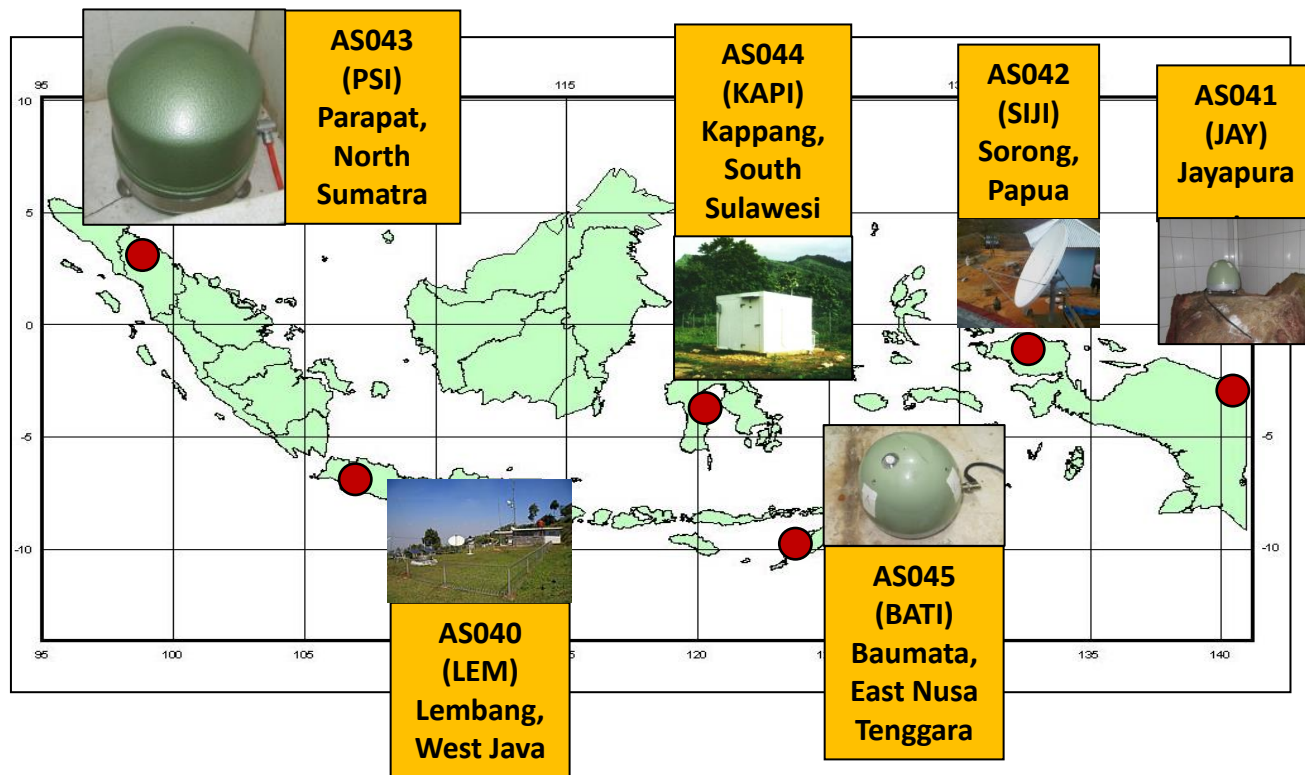


Inauguration of InaTEWS by Indonesian President Susilo Bambang Yudhoyono

CTBTO

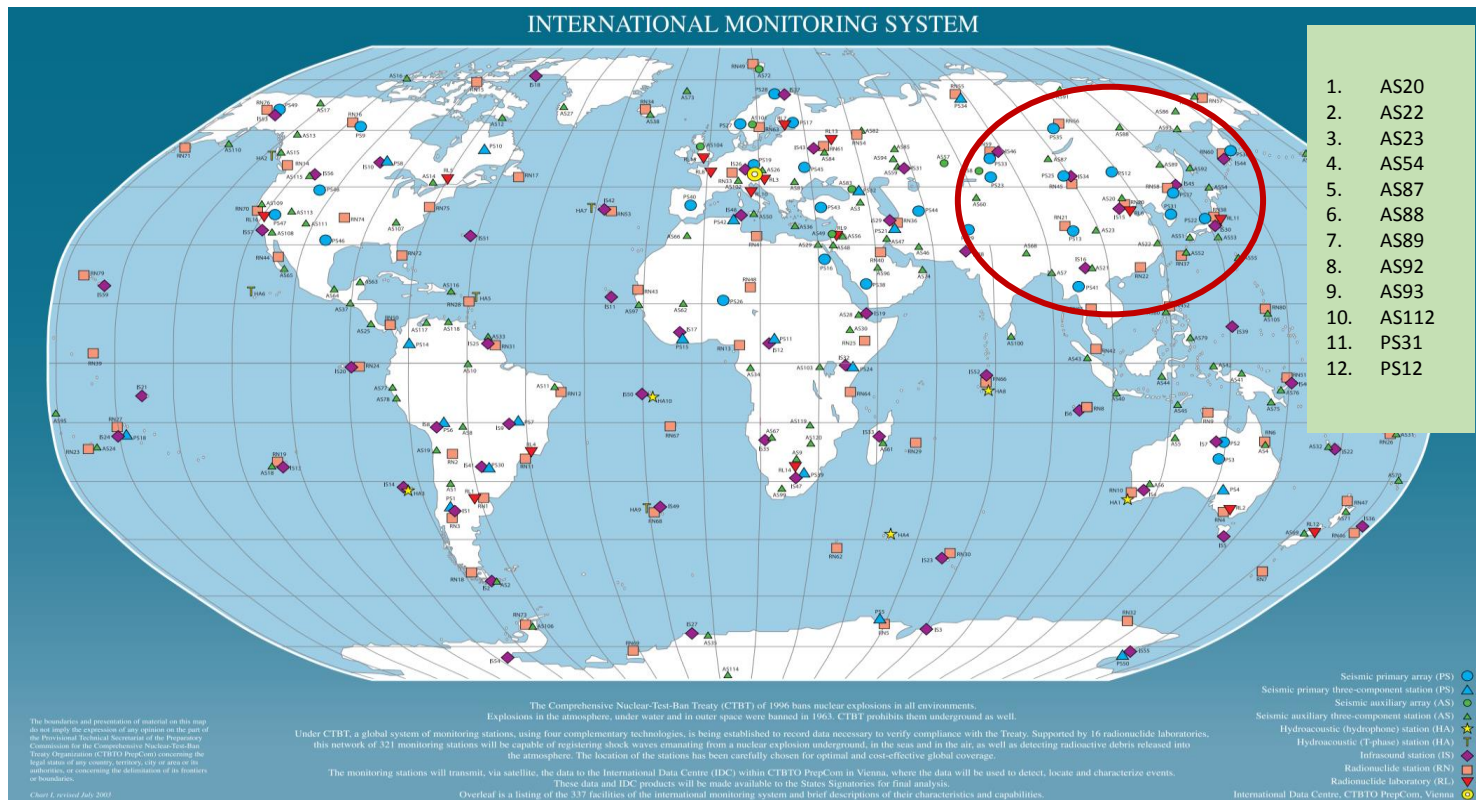
**Additional CTBTO's Station (8 stations) outside the Indonesia region had been integrated into the InaTEWS**

1. Hachijojima, Izu Islands Japan (AS053)
2. Chichijima, Ogaswara Japan (AS055)
3. Chiang Mai Thailand (PS41)
4. Davao, Mindano (AS079)
5. Charter Towers, Australia (AS4)
6. Nana Peru (AS78)
7. Honiara Guadalcanal, Solomon (AS98)
8. Guam, Marianas Islands USA (AS105)



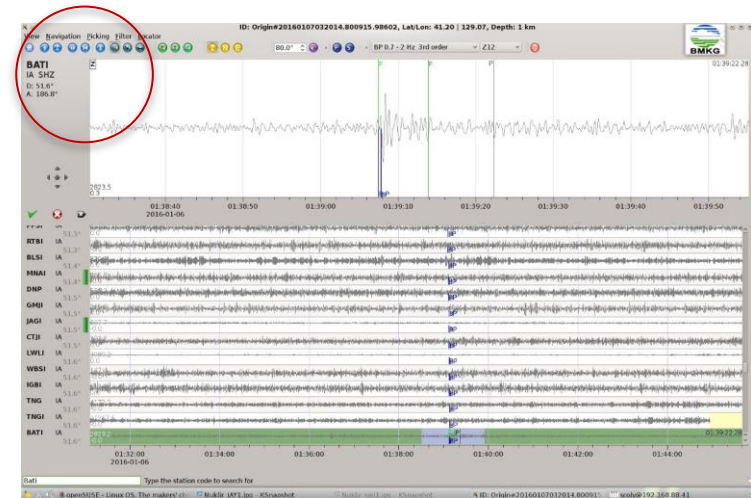


# Indonesian NDC Future Planned: Integrated all CBT's Verification Regime

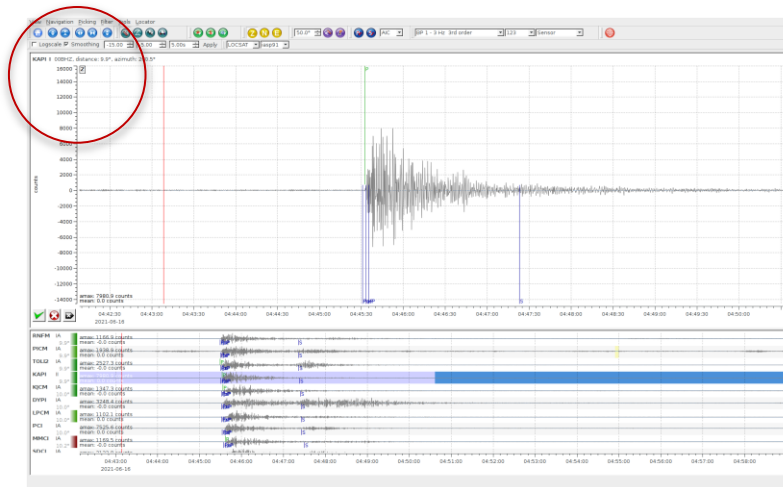


- Indonesian NDC planned to add more CBT Station to Increased its capability for detecting an unusual seismic event (UNE, Volcanic eruption, Atypical Tsunami event, etc.)
- Integrating CBT NDC-in-a-Box (NiaB) package software to support InaTEWS

## North Korea Nuclear Testing Detected by the Indonesia CTBTO's Stations in 2017



AS045 (BATI), Baumata, East NusaTenggara - Indonesia



AS044 (KAPI), Kappang, South Sulawesi - Indonesia

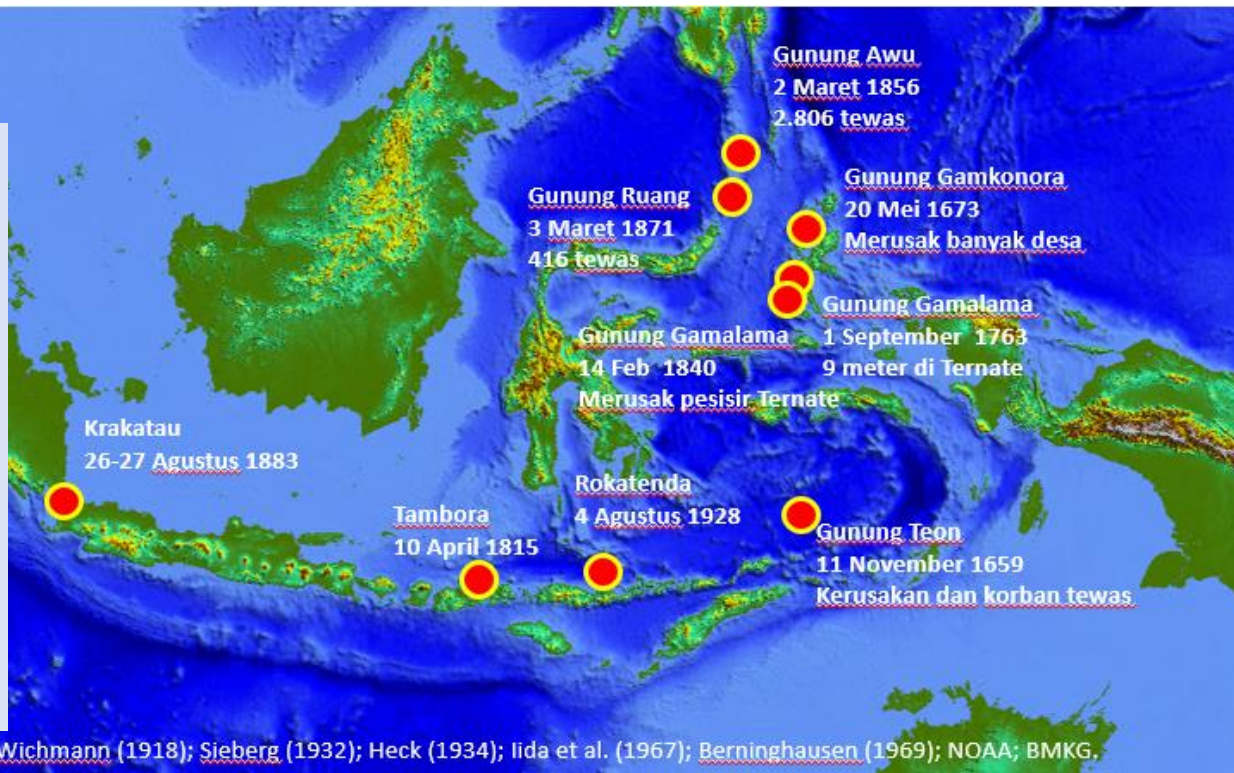
## Central Moluccas Tsunami Earthquake, June 16, 2021

- BMKG commits to conduct routine maintenance for the 6 (six) CTBTO's auxiliary stations.
- The sensors operated well to detect the nuclear testing monitoring, such as the North Korea Nuclear Testing in 2017 and the recent atypical tsunami event in the Moluccas



## GOAL:

- Realtime data exchange from local seismic station among NDC in the pacific ocean to support tsunami service provider
- Adding more CBT's regional detection sensor (hydroacoustic and Infrasound) in the SEAPFE region to monitor multihazard event that can be affected to the surrounding countries



Sumber: [Soloviev and Go \(1974\)](#); [Wichmann \(1918\)](#); [Sieberg \(1932\)](#); [Heck \(1934\)](#); [Iida et al. \(1967\)](#); [Berninghausen \(1969\)](#); NOAA; BMKG.

Technical Training for Station Operators from  
Auxiliary Seismic Stations , 20-24 November  
2017, Vienna, Austria



CTBT East Asia Regional National Data Center  
Development Workshop, 17-21 September  
2018, Ulaanbaatar, Mongolia



Infrasound Technology Workshop 2019  
(ITW2019), 10-14 November 2019, Aqaba,  
Jordan



- Indonesian NDC had been participated and actively support the CBT capacity development program
- The Regional Infrasound Workshop and Integrated Training for SEAPFE NDCs (2020) have been canceled due to the pandemic situation. We propose to continue the plan by conducting the program using an online platform
- Joined research between CBT and Indonesian NDC to identify natural and artificial phenomena to support CBT Verification regime in the region
- To strengthened cooperation with CTBTO, Indonesian NDC (BMKG) are proposing secondment in CBT HQ using an internal budget