## INTERVENTION OF THE INDONESIAN DELEGATION Agenda 10: Global navigation satellite systems

## Madame Chair,

Indonesia follows closely with interest the recent developments in global navigation satellite systems (GNSS). GNSS provides a cost-effective alternative for developing countries in the provision of navigation and satellite-based positioning.

Indonesia has widely applied of GNSS, among others, to support disaster mitigation, to determine surface deformation and landslides, reference points, positioning, and its use in flight. GNSS has also been used for research purposes includes troposphere research (to find water vapor), scintillation monitoring, ionospheric delay observation, and radio occultation. Moreover, we have developed smartphone application for geotagging using GNSS. In addition to the various GNSS applications, we conduct researches related to the use of GNSS and ionospheric influences on these applications continuously.

## Madame Chair,

LAPAN organized the BELS Workshop and Training on GNSS in Bandung, July 17-19, 2019, in collaboration with BELS (building European Links toward South East Asia), NSTDA (National Science and Technology Development) Thailand, Hanoi University of Science and Technology (HUST) Vietnam. The topic of this Workshop is The Galileo System and Its Applications for South East Asia with the training focus on Galileo and GNSS Precise Positioning. The workshop was attended by approximately 100 participants, while for the training the participants were limited to only 30 people.

LAPAN also sent researchers to the Workshop on the Application of Global Navigation Satellite System in Fiji on 24-28 June 2020 with full support from the UN.

LAPAN, in collaboration with BIG and BMKG conducted joint research using this GNSS to develop earthquake and tsunami early warning systems based on real time GNSS data.

## Madame Chair,

Indonesia puts specific focus on research of the ionosphere, which is closely related to the GNSS application. Satellite signals received on Earth have to go through the ionosphere, where outer space climate carries significant impact. Indonesia has benefited from international cooperation and joint research activities to gain more knowledge on ionospheric variability, in which outer space climate affects geomagnetic fields / radio waves, particularly for GNSS operations.

I thank you.