

# SPACE WEATHER INFORMATION AND FORECAST SERVICES

(SWIFtS)

## WEEKLY SPACE WEATHER NEWS

Periode: 2<sup>nd</sup> September – 8<sup>th</sup> September 2016

### SOLAR ACTIVITY

For the last week, the sun has been in quiet level. During those period, there were 6 active regions on the solar disk, named NOAA 2580, 2581, 2584, 2586 and 2587. The most complex region was NOAA 2485 with beta gamma configuration, whose biggest size was at September 4<sup>th</sup>, 2016 and sunspot number was 25. There were detected 15 type III solar radio bursts along these week, with majority occurrence on September 7<sup>th</sup>, 2016. According to SDO/AIA observation, there was one filament eruption occurred on September 5<sup>th</sup>, on southern hemisphere. This eruption wasn't followed with any CME. There were also several weak CMEs detected by SOHO/LASCO in geoeffective position. Solar activity is predicted to be in quiet level. For the past week, flux of high energy proton was far below threshold so that the activity level is quiet. It is predicted still on the same quiet level.

### GEOMAGNETIC ACTIVITY

Geomagnetic activities during September, 2<sup>nd</sup> – 8<sup>th</sup> 2016 were in quiet to minor storm level. The minor storm condition (based on Dst index) occurred on September 2<sup>nd</sup>, 2016 with the minimum of Dst index reached -66 nT, while the K index from Station of Agam showed in active level with K index reached 4. September 5<sup>th</sup>, 2016 geomagnetic condition was in active level with K index from Station of Agam reached 4 and the minimum Dst index reached -42 nT. The geomagnetic conditions from September 6<sup>th</sup>– 8<sup>th</sup>, 2016 were in quiet level with K index from Station of Agam showed 3. Substorm in this week occurred continuously with intensity less than 1500 nT. The conditions of electron flux in this week were in low to very high level. The low condition of electron flux occurred on September 2<sup>nd</sup>, 2016 and on September 5<sup>th</sup>–8<sup>th</sup>, 2016 were very high conditions of electron flux. The geomagnetic activities and electron flux reached minor storm and very high level because of fast speed stream from geoeffective coronal holes were at northern and western hemisphere in this week. CME occurred on September 6<sup>th</sup>, 2016 at 08:36 UT at western solar disk with angular width and speed reached 84° and 520 km/s.

### IONOSPHERIC CONDITIONS

The conditions Ionosphere in this week were in strong disturbance conditions for 6 days. The disturbances in the ionosphere start occurred from 2<sup>nd</sup> September until 7<sup>th</sup> September 2016 which is a depression of critical frequencies of  $F_2$  layers ( $f_oF_2$ ). The  $f_oF_2$  depressions impacting the radiowave propagations over the ionosphere which known as the Radio Blackout. Although the  $f_oF_2$  experienced one day depression, the minimum frequencies ( $f_{min}$ ) of the ionosphere in this week were in normal conditions. There was no increment of  $f_{min}$  that could be a source of disturbance in the HF radio communication which known as Shortwave Fadeout (SWF). The occurrences of *Spread-F* were noted appear in several days. This occurrences of *Spread-F* could be a source of *Fading* disturbances for HF Radio communication. Beside the *Spread-F*, the *E-Sporadic* also reported always occurred during all days with values of the critical frequency ( $f_oE_s$ ) could reach above the  $f_oF_2$  values. This occurrences of *E-Sporadic* could be a positive impact especially when the depression of  $f_oF_2$  occurred. Based on the observations using GISTM over Biak, the scintillation ( $S_4$ ) condition for this week were between quiet to strong level. The strong level of scintillation occurred at 8th September 2016 and could impact to the *loss of lock* disturbance. The maximum average value of W index in this week were 3. Those values indicated that the error positioning parameters could be in to the medium scale of disturbance conditions.

*For daily space weather information and forecast, please refer to our **Space Weather Information and Forecast Services (SWIFtS)** official website at [swifts.sains.lapan.go.id](http://swifts.sains.lapan.go.id) or please e-mail us for request by facsimile*



Space Science Center  
Deputy of Space and Atmospheric Science  
Indonesian National Institute of Aeronautics and Space (LAPAN)  
Jl. Dr. Djundjunaan 133 Bandung 40173  
Ph./Fax. (022) 6012602/6014998  
E-mail: [swifts@lapan.go.id](mailto:swifts@lapan.go.id)