

SPACE WEATHER INFORMATION AND FORECAST SERVICES

(SWIFtS)

WEEKLY SPACE WEATHER NEWS

Periode: 24th – 29th September 2016

SOLAR ACTIVITY

For the last week, the sun has been in quiet to less eruptive level at the beginning of week with only one C-class (C1.3) flare was occurred. During those period, there were only 3 active regions on the solar disk: NOAA 2593, 2596, and 2597. NOAA 2597 that ever has beta-gamma configuration was the most complex one. According to ground based solar radio and satellites (SDO, SOHO) observation, there were no significant radio burst, filament eruption, and CME along these week. Solar activity for the next week is predicted to be in quiet to less eruptive 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, 24th – 29th 2016 were in active level even though quiet level occurred at the beginning of the week. Active level condition based on Dst index might caused by high speed stream from geoeffective coronal hole has taken place from 26 September 2016 and increasing to minor storm level at the weekend. Dst index minimum was -61 nT on 29 September 2016 at 10:00 UT, with maximum Kp index was 6 on 28 September 2016 at about 19:00-21:00 UT, while K index from Agam was 4 almost all day from 28-29 September 2016 in local time. It showed that geomagnetic disturbance propagate from high latitude to low latitude. Substorm occurrence during the week were quite active since 25 September 2016 with intensity <1000 nT and increased to <1500 nT on 27 September 2016, until 29 September 2016 the intensity has reached <2000 nT. Until today, geomagnetic disturbance still occur at high latitude and may propagate to low latitude also.

IONOSPHERIC CONDITIONS

The conditions Ionosphere in this week were vary from quiet to strong disturbance.

The strong disturbances in the ionosphere occurred at 29th September, moderate disturbances occurred at 24th and 27st September 2016, others were quiet. The disturbances occurred due to a depression of critical frequencies of $F/F2$ layers ($foF2$). The $foF2$ depressions impacting the radiowave propagations over the ionosphere which known as the Radio Blackout. Although the $foF2$ experienced one day depression, the minimum frequencies ($fmin$) of the ionosphere in this week were in normal conditions. There was no increment of $fmin$ 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 high scale on several days at 23rd, 27th, and 29th September 2016. 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 ($foEs$) could reach above the $foF2$ values. This occurrences of *E-Sporadic* could be a positive impact especially when the depression of $foF2$ occurred. Based on the observations using GISTM over Biak and Bandung, the scintillation ($S4$) condition for this week were vary from quiet to strong level. The strong scintillation occurred at 24th September 2016 for 15 minutes, and the moderate scintillation occurred at 26th September 2016 for 2 hours over Bandung station. The quiet to moderate level of scintillation didn't impact to the *loss of lock* disturbance but the strong level impact the loss of lock in slight level. The maximum average value of W index in this week were less than equals 2. Those values indicated that the error positioning parameters could be in to the slight 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 or please e-mail us for request by facsimile*



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