Recently NCAR has developed a powerful tool, known as FSO (Forecast Sensitivity to Observations), to assess the impact of observing systems on forecast error. By defining a forecast error norm, the adjoint of the WRF forecast model (WRFPLUS) and the adjoint of WRFDA analysis can calculate the forecast error sensitivity to each observation used by the analysis. From there, the impact of observations on forecast error can be computed. By doing this for every data assimilation cycle on a routine basis, the results can be very useful for monitoring the operational observing systems. Statistics over a longer period can provide quantitative guidance for improving the forecast scores. Supported by Taiwan Central Weather Bureau (CWB), the FSO was coupled with CWB OP23 operational analysis/forecast system to assess the impact of the observation data on the 24-hour WRF forecast error verified against ECMWF re-analysis. The preliminary observation impact diagnosis with CWB OP23 system shows that the SOUND is the most important observation to reduce the forecast error in terms of the summation of impact from all observations for each observational type, followed by GeoAMV, SYNOP and GPSRF. In 0600UTC and 1800UTC, the greatest forecast error reduction is due to the GeoAMV instead. However, in terms of impact per observation, GPSREF is the most efficient observation type to reduce the 24h forecast error, followed by SONDE SFC, SYNOP and SOUND. It is worth to noting that the GPSREF shows a steady and consistent positive impact on CWB OP23 system in all times. However, the time series of FSO diagnosis shows that, in 0600UTC and 1800UTC, many cycles show positive error contribution for almost every kind of observations.