Solar shortwave flux (Fsw) at the earth surface plays very important role in surface radiation budget. Accurate Fsw observations over global and regional scales are essential for climate study, regional ecology, and solar energy application. To meet global and regional Fsw measurement, in-situ surface observation and satellite retrieval of surface Fsw are both important. High plateau as Tibet is an important area for earth radiation budget but with very sparse observation. For obtaining Fsw knowledge of this area and further for validation of satellite retrieved results of Fsw, observations of Fsw and related meteorological parameters are conducted at two neighbouring sites: Yangbajing (30.088°N, 90.54°E, 4350m ASL) and Namucuo(30.774°N, 90.988°E, 4730m ASL). Based on one year data, monthly mean and variation of Fsw and derived atmospheric flux transmittance, mean diurnal variation of flux transmittance, correlation of flux transmittance and cloud parameters. It is found that the clear day flux transmittances for these two sites are very high and stable. The standard deviation of flux transmittance of both sites in local noon is less than 0.12% which means these two sites are ideal for surface based observation for validation of satellite retrieval. Owing to the most preferential cloud types are convective and very inhomogeneous, conventional retrieval of Fsw with the assumption of homogeneous cloud layer is not suitable. Numerical simulation for inhomogeneous clouds is made to reveal the complicated situation. Suggestions for satellite retrieval of Fsw over Tibet will be made.