SuperDARN and SENSU issues remaining unresolved and ways forward

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SuperDARN – Super Dual Auroral Radar Network – is an international HF radars network since 1995 which is a uniq tool to eneble us to obtain quasi real-time global space weather map in high temporal resolution at ionospheric altitude, and whose data have been widely utilised for many fundamental and applied scientific researches, and has significantly contributed to understanding not only space weather and magnetosphere-ionosphere system and their couplings but also MLT region dynamics. The number of radars and its fields-of view are still growing and expanding and its importance for STP researches has become more increasing. But there are still some fundamental technical and analytic issues remaining unresolved – e.g., interferometer calibration, range offset issue, the methods to determine geolocation of ionospheric backscatter, issues on validation of velocity, electric field and potential as well as fitting algorithm to obtain physical paramters from ACFs or IQ samples, issues on methods to obtain true and realistic potential maps (validity of the current way to obtain space weather map), hardware variability and common software issues, (~20 years) older radar maintenance issues which are sometimes fairly serious, interference issues, and so on. Most or almost all the issues above have been tried to be intensively resolved and/or improved much by great efforts in the international SuperDARN community. Some important issues including those related to SENSU Syowa radars will be described and possible ways forward to overcoming will be shown in detail.