

While much progress has been made in understanding the radio science and meteor physics implications of the meteor “head-echo” observed with high power, large aperture (HPLA) radars, issues remain particularly regarding latitude dependency of the observed meteor altitude and speed distributions. We address these issues via statistical analysis of 24-hour runs from UHF observations at the Resolute Bay Incoherent Scatter Radar (RISR, 442.9 MHz), the Poker Flat Incoherent Scatter Radar (PFISR, 449.3 MHz) and the Arecibo Observatory Radar (AO, 430 MHz). The meteors observed at all three radars were detected and analyzed using the same automated FFT periodic micrometeor searching algorithm reported by Mathews et al (JASTP **65**, 1139-1149 (2003)).

The long (24 hour) period of observations at each facility allows us to obtain significant meteor populations. We present the statistical results from these datasets (i.e. altitudes, velocities, decelerations). The positions of the faces of RISR and PFISR do not allow for synchronous observations at zenith. The RISR observations were conducted looking parallel to the axis of Earth’s rotation; the PFISR observations were conducted with the beam pointing at zenith. The difference in geometry allows for the use of RISR as a control radar site and to study PFISR for seasonal and diurnal variability. The PFISR results are presented as an observational experiment compared to a RISR population focusing on a fixed position in the sky. The variations between sites provides insights into meteoroid questions such as mass flux, fragmentation and/or differential ablation and possible directionality of the parent comet source.