An important phenomenon of the magnetosphere-ionosphere (M-I) coupling is the formation of upward ion flows from the ionosphere since they can be a significant source of magnetospheric plasma and also affect dynamics of the magnetosphere. Bulk ion upflow in the polar ionosphere transiently occurs with upward velocities of a few 100 to 1000 m s\(^{-1}\), and must play an important role as plasma source for ion outflow. The ionospheric ion up/outflow and its related phenomena have been intensively investigated with the European Incoherent Scatter (EISCAT) radar systems located in northern Scandinavia and Svalbard. In addition to the EISCAT Tromsø UHF radar data available since the early 1980s, a continuous dataset obtained with EISCAT Svalbard radar (ESR) during the solar minimum between March 2007 and February 2008 serves as one of the most suitable datasets for investigating the relation between ion upflow and its related phenomena such as naturally enhanced ion-acoustic lines. In this presentation we present resent progress in the ion upflow study using the EISCAT, and discuss its relation to the M-I coupling.