ABSTRACT

The rôle of minor ions in the solar wind for diagnostic purposes is reviewed in the light of most recent results from the SOHO mission. Solar wind elemental and isotopic abundances are essentially determined at the interface between the outer convective zone and the transition region to the corona. The FIP effect (FIP=First Ionization Potential) "dyes" the solar wind at its source, giving different colours in the form of *chemical abundances* to different stream types, such as coronal hole associated streams or low-speed interstream solar wind. Charge state abundances of minor ions are established near the temperature maximum of the corona. Depending on the flux tube geometry and on the efficiency of Coulomb friction near the critical point, helium is more or less strongly depleted relative to hydrogen and most of the other elements. Correspondingly, we expect isotopic effects of a few percent per mass unit to occur in the interstream solar wind whereas virtually no fractionation of isotopes is expected in the high speed solar wind.