Measurements of atomic oxygen and hydroxyl airglow volume emission rates observed by the WIND Imaging Interferometer on UARS and thermospheric O/N$_2$ density ratios from the GUVI experiment on TIMED, obtained during events of major stratospheric warmings are examined for their effect on the high latitude thermosphere. The coupling between low and high latitudes during these events is also considered. MLT temperature data from the WINDII experiment derived from the O($^1$S) airglow observations are used. At the time of the SSW the airglow emissions and temperature in the MLT region appear depleted and decreased, respectively, followed by enhancement of the airglow emission rate during the SSW recovery phase. From the observed OH and O($^1$S) volume emission rates the O volume mixing ratios are derived. The observed response of the MLT region to the major stratospheric warming is further examined employing temperature and wind fields, as well as NO and O mixing ratios from the extended Canadian Middle Atmosphere Model (CMAM) at high latitudes extending from 10 to 220 km. The results are compared and discussed.