

Recorded Weather Data – SMAPVEX12

Recorded weather data, obtained from 15 permanent weather stations in and adjacent to the SMAPVEX12 study area, have been compiled for the period of June 7-July 19, 2012. Weather records were drawn from stations operated by the Environment Canada (EC) Weather Office, the Manitoba Agriculture, Food and Rural Initiatives (MAFRI) Manitoba Ag-Weather Program, and WeatherFarm. The distribution of weather stations in relation to the SMAPVEX12 study area is shown in the attached map (SMAPVEX12_WeatherStations.pdf). The five MAFRI stations are situated between 17km and 50 km outside the study area boundary. Three of the six WeatherFarm stations are located within the study area, and the remaining three are within 7 km of the study area boundary. The four EC stations range from 29 km outside the boundary to within the study area. Air temperature (°C) and precipitation (mm) are summarized in hourly increments for all stations in the attached spreadsheet (SMAPVEX12_WeatherStationData.xlsx). The completeness of data and temporal resolution obtainable varied between providers. Data from MAFRI stations are complete and consistent. WeatherFarm data contain several missing and double observations (wherein two different values are recorded for the same time interval at a given station). Data obtained from EC are accurate, but contain several gaps. Double and dropped values are flagged using red text. Missing values are coded -99999M.

In addition to the attached dataset, ancillary weather variables can be obtained for some stations if necessary. Available MAFRI weather variables include relative humidity (%), wind speed (km/h), direction and peak wind speed (km/h), and soil temperature (°C). WeatherFarm stations report a wider range of additional variables, including relative humidity (%), dew point (°C), wet bulb (°C), wind direction, wind speed (km/h), wind chill index (°C), barometric pressure (mb), precipitation rate (mm/h), light percentage, rate of temperature change (°C/h), rate of humidity change (%/h), pressure rate (mb/h). Finally, reporting intervals of 15 minutes can be accessed for all EC stations. As well, the WeatherFarm station at Fannystelle reports at five minute intervals.