



Aviation Weather Observing Bulletin

Issue 1

October 2001

Anemometer Unserviceable due to Ice Accretion

During periods of freezing precipitation i.e. freezing rain, freezing drizzle or prolonged periods of freezing fog, wind sensing equipment is subjected to ice accretion which may reduce or cause complete failure of anemometer performance.

The nature of this problem is that ice accretion on the wind speed detectors slows or totally impedes the rotation of the sensing cups, resulting in wind speed readings which are lower than actual wind speeds or reading "Calm" when in fact they are not.

Also, erroneous wind direction readings can occur due to ice accretion on the wind direction vane. Ice loading on the vane will reduce the efficiency of direction sensor movement or totally restrict movement, resulting in unreliable wind direction readings.

As erroneous anemometer readings result in a real hazard to aviation, the observer must use extreme care when determining wind data during conditions of ice accretion.

The observer shall determine if ice accretion is resulting in an unserviceable anemometer and if so, **estimate** the wind direction and/or speed as per MANOBS 7.3.

In determining the reliability of wind data the observer should consider the following:

- Visual ice accretion on detectors.
- Ice accretion rate on ice accretion indicator.
- Duration of freezing precipitation.
- Intensity of freezing precipitation.
- Comparison of wind data prior to ice accretion.

- Wind data inconsistent with windsack, flags or other visual reference.
- Erratic direction readings, sluggish response to direction variability.
- Speed readings lowering, sluggish response to gusts.
- Comparison of measured wind with sensation of actual wind on ones face or hands.
- Wind data in relationship to pressure system.
- Comparison of wind data with other stations in proximity.

Note: Stations equipped with only 78D Digital or U2A dial and no wind recorder may find it more difficult to recognize decreasing anemometer performance.

Estimating Wind

Direction shall be estimated to eight points of the compass. The direction of the wind may be determined by watching a windsack, wind vane, or the drift of smoke.

Speed shall be estimated and reported in knots. The speed may be estimated by using the Beaufort Scale of Winds (MANOBS 7.6). Care must be taken when applying scale specifications (twigs, branches) as these may also be affected by ice accretion and result in low readings.

If winds are estimated due to ice accretion, the following remark should be included in the report:

WND ESTD DUE ICE ACCRETION

The Aviation Weather Observing Bulletin is a publication of the Meteorological Service of Canada, Atmospheric Monitoring and Water Survey Directorate, Aviation Division. Comments or suggestions for content should be addressed to: Gary Cormick, Manager, Aviation Weather Observing Standards, 4905 Dufferin Street, Downsview, Ontario M3H 5T4
