

ASAE EP505.1 APR2015 (R2019)

Measurement and Reporting Practices for Automatic Agricultural Weather Stations



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Keywords: Meteorology, Weather

1 Purpose and Scope

1.1 Purpose: The purpose of this Engineering Practice is to establish minimum recommendations for measurement, reporting, siting, operation, maintenance, and data management procedures for automatic agricultural weather stations. Additionally, these recommended procedures are intended to assist in the planning of automatic agricultural weather station installation and operation.

1.2 Scope: This Engineering Practice applies to automatic weather stations installed individually, or as part of a network of stations, for the measurement and reporting of specific weather variables in agricultural environments. This Engineering Practice also addresses a recommended core set of measurements and general siting considerations for agricultural weather stations. It is recognized that special purpose agricultural weather stations may deviate from the recommendations herein, particularly with respect to sensor deployment and station siting conditions. This Engineering Practice does not specifically address these special purpose stations.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies unless noted. For undated references, the latest approved edition of the referenced document (including any amendments) applies.

ASAE S526.2, Soil and Water Terminology

ASAE D271.2, Psychrometric Data

3 Definitions

For the purpose of this Engineering Practice only, the following definitions are defined herein. Additional terminology is defined in ASAE Standard S526, Soil and Water Terminology.

3.1 adiabatic lapse rate: The decrease in temperature of a parcel of air with height above the surface when lifted in elevation adiabatically, that is, without the addition or withdrawal of heat from the surrounding air. The adiabatic lapse rate of dry air is about 1°C/100 m.

3.2 anemometer: Instrument for measuring the speed of the wind.

3.3 atmospheric (barometric) pressure: The pressure exerted by the weight of air (dry air and water vapor mixture) above a given point.