



South African Weather Service

ISO 9001 Certified Organisation

SOUTH AFRICAN WEATHER SERVICE

Meteorological Training Institute

SAQA US ID 246532

Install, use and maintain automatic weather stations (AWS)

Facilitator Guide

Compiled by:

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Document Control

Version and Amendment Schedule

Version	Version Date	Author	Description of Amendments
10.1	13/04/2014	Winifred Jordaan	Documents created. Ammended from MTI to RTC
10.2	1/06/2014	DAA Makhutle	Document adapted for verification of instrumentation

Compliance Schedule

Compliance Type Checked	Compliance Approved by:	Responsibility	Signature	Date of Compliance Approval
Documentation Compliance	Ms. C. Rae	QMS Delegate		

Approval and Control Schedule

Approved By	Designation	Responsibility	Signature	Date Approved	Copy Status
Dr. W. Jordaan	Manager: MTI	Course Coordinator: SAWS			
Ms. C Rae	Qualification manager: Obs	Course Coordinator: Weather Observer Certificate			

Introduction

This is an elective Unit Standard towards the qualification: National Certificate: Weather Observations. The target market is qualified meteorological technicians who are tasked with the verification of weather observing instruments and peripherals. This material offers complete information that is meant to assist the target market to complete and correctly verify the said equipment.

The material requires the learner to complete a number of practical tasks and will be assessed accordingly a week after the training.

This guide must be used together with the other manual and must be seen as a guideline that contains the minimum required information. Facilitators are encouraged to use examples and even to bring cases or illustrations to the learning situation wherever possible.

The success of this facilitation is determined by the learner's willingness to venture out and find more relevant information and challenge themselves to apply their knowledge on a practical basis, and thus build their own experience and learning.

Programme Name	Verification of basic electronic weather observing instruments (AWS; ARS) and peripheral equipment
Purpose of the programme	The purpose of this programme is to explain to learners how to do perform verification of basic electronic weather observing instruments (AWS; ARS) and peripheral equipment
NQF Level	
Learning assumed to be in place	<ul style="list-style-type: none"> • Observation knowledge • Communication and mathematical literacy at the equivalent of NQF Level 4. • Basic computer knowledge • MetCap software • CR10 series logger program and logger communication knowledge
Unit standard Title	Install, use and maintain automatic weather stations (AWS).
Credit value	
Specific outcomes of this unit standard	<p>The demonstrated ability to:</p> <ul style="list-style-type: none"> • Understand the operation of various sensors (signal output and the weather parameter). • Correctly perform the verification of weather observing instruments and peripheral equipment. • Identify and the ability to correct the identified variable errors • Use the weather stations communication software.
Assessment criteria	<p>The ability to produce all of the following types of evidence:</p> <ul style="list-style-type: none"> • The correct use of the laptop computer and logger communication software (HyperTerminal; PuTTY; WinComLog) • The annual verification of the RM Young 05103 WM wind sensor. • The annual verification of the tipping bucket raingauge. • The annual verification of the Vaisala PA11 pressure standards. • The quarterly verification of the station humidity and pressure sensors • Quarterly verification of test equipment including allowed tolerances. • The relevant records must be correctly completed. <p>The above are all done through practical demonstration and through oral examination.</p>

Critical Cross Field Outcomes	The ability to: <ul style="list-style-type: none">• Identify and solve problems when verifying the various instruments on site.• Organise and manage oneself and one's activities to ensure all verification documents are at hand as and when required.• Use science and technology to record and process data regarding an automatic weather station (AWS).• Demonstrate an understanding of the world as a set of related systems where the successful installation and maintenance of an automatic weather station (AWS) leads to improved and accurate weather data being produced.
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Module	Instruction	Exercise	Model Answer
<p>1. Verification of automatic weather stations (AWS &ARS) and related peripherals. 2. Undertake full inspections of automatic weather stations (AWS).</p>	<ul style="list-style-type: none"> • A brief introduction to learners as to what will be discussed during the programme. • The various sensors are explained in relation to their operations. • The use of communication software between the laptop and loggers is explained including identification of the ports. • The Logger Programme data positions are explained. • Annual wind sensor verification is demonstrated. • The WinComLog program and the procedure for raingauge verification is explained. • The pre-verification procedure is demonstrated. • Verification procedures are demonstrated on identified AWS instruments using the laptop computer 	<ul style="list-style-type: none"> • The learners must correctly install or use these software if already installed. They must be able to identify the port in use. • The various logger variables positions must be demonstrated. • The learners must demonstrate the whole procedure and complete the required records. • The learners must demonstrate the whole procedure and complete the required records. • The learners must compile what is necessary for a pre-inspection check list. • The learners must complete the verification procedures on all identified AWS instruments using the 	<p>The answers are explained in the manuals and SOI.</p> <p>Identify communication ports in use.</p> <p>Complete the required records.</p>

		laptop computer.	