WORLD METEOROLOGICAL ORGANIZATION

WMO HydroHub

Case Study

Independent performance testing of low-cost observation technologies

Countries

Afghanistan, Turkey, United States of America

Summary of Activity

A variety of low-cost open source solutions are available that could significantly reduce the cost of hydro-meteorological observations, especially when manufactured or assembled directly by national services or local partners. Unfortunately, operational uptake is rather low today. This is usually not because there are problems with the technologies, but due to a lack of acceptance on the side of end-users.

The WMO HydroHub views this as an opportunity and works on removing barriers to operational use of innovative solutions.

For example, in collaboration with the Turkish State Meteorological Service (TSMS) and the University Corporation for Atmospheric Research (UCAR), the WMO HydroHub initiated a two-year performance assessment campaign of UCAR's 3D printed automatic weather stations (3D-PAWS), leveraging the services of the WMO Regional Instrument Centre (RIC) in Turkey. As a result, accuracy and calibration drift of 3D-PAWS will be independently certified, increasing the competitiveness in procurement and, eventually, end-user acceptance. Turkey builds capacity to manufacture and operate this new technology, and shares its practical experiences, allowing UCAR to improve their product. In a second step, TSMS will engage with the Turkish national hydrological service to offer a similar performance assessment for water parameters by including UCAR's water level sensor in the campaign. Experiences are fed back to the regulatory process in WMO, through the long-standing collaboration of UCAR with WMO Technical Commissions.

The CREWS Afghanistan project that is co-funding the activity, relies on 3D-PAWS to reduce cost in their effort to bring early warnings to rural communities in Afghanistan.

Mid-term, deliverables and experiences from these activities will support reuse of 3D-PAWS in other countries. Procedures and experiences can inform providers of other innovative technologies.

Benefits

- Accuracy and calibration drift of the 3D-PAWS solution are independently assessed and certified
- Practical experiences are conveyed from TSMS to the solution providers UCAR to improve operational fitness of the technology
- 3D-PAWS becomes more competitive in procurement and increases user-acceptance through independent assessment and sets an example for low-cost technologies in operations at national services in the project countries and beyond
- Through collaboration of the national agencies in Turkey, assessment of water parameters can be offered through the WMO RIC
- The performance assessment protocol can be applied to other innovative technologies and set an example for other WMO RICs, effectively improving their capacity for service delivery
- Practical experiences can be introduced in WMO Regulations to reduce barriers to innovation

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