Summary of Surveys and Interviews in Support of the BIP-M/MT Review

November 2018

The Basic Instructional Packages for Meteorologists and Meteorological Technicians (BIP-M and BIP-MT), published in 2013 and included in WMO-1083, recommend the appropriate educational background to become a meteorologist and meteorologist technician. This background can be used for personnel in many government and private sector jobs. The BIP-M is currently an international standard required by all Aeronautical Meteorological Forecasters. EC-70 requested that a review of the BIP-M and MT be conducted to ensure it meets new professional requirements.

**Survey of Members**

During the fall of 2018, a letter was sent from the Secretary General to all WMO Members asking for input on the review of the BIP-M and BIP-MT. Most countries replied by identifying a focal point which were then sent a brief six question survey. The survey can be found on the Moodle website at <http://etrp.wmo.int/moodle/course/view.php?id=151>.

As of 14 November 2018, 38 countries replied to the survey and a broad compilation of their answers shows:

* Nearly all countries (90%) use the BIP-M. If they answered “partly” or require a university degree in meteorology, it was counted as a “yes”;
* Most countries (80%) use all or part the BIP-MT;
* Nearly all countries (90%) offer some additional national training although this may not be completely representative of the broader WMO community;
* Nearly all countries (90%) said that the BIP-M needed revision:
	+ Add new relevant content (70%)
	+ Add qualification in service areas such as aviation or marine (55%)
	+ Add an assessment tool that demonstrates expected learning outcomes or prior learning (55%)
	+ Add regional topics like tropical or marine (40%)
* Most countries ((80%) said the BIP-MT needed revision:
	+ Add automatic weather observations (55%)
	+ Add an assessment tool (45%)
	+ Add content on WIGOS and Data Processing (40%)

Less frequent were calls for less math and physics, more personnel classes, and training on remote sensing.

Some of the countries (not all) had a chance to describe the typical duties of their meteorological technicians. The responses from 17 countries compiled into relevant categories:

Meteorological Technician Roles:

* IT and Data Processing:
	+ Mexico, UK, Korea, Latvia, Kenya, South Africa
* Social Media and Communication:
	+ Mexico, Russia, Kenya. Mauritania,
* Observations:
	+ Russia, Costa Rica, Cape Verde, Philippines, Kenya, USA, CIMH, South Africa, Sierra Leone, Nigeria, Mauritania, Zimbabwe
* Engineering and Technician:
	+ UK, Philippines, Kenya, CIMH, South Africa
* Observing Network Operations:
	+ UK, Korea, Central African Republic, Latvia, USA, CIMH, South Africa, Sierra Leone, Mauritania, Zimbabwe
* Managing a voluntary observing network:
	+ UK, USA
* Forecasting:
	+ Central African Republic, Zimbabwe
* Climate/Climatology:
	+ Cape Verde, Zimbabwe
* Radiosonde:
	+ Cape Verde, USA (in Alaska)
* Research Assistant:
	+ Philippines
* Customer Service:
	+ Kenya
* Training:
	+ Kenya

**Survey of Technical Offices**

In addition to the survey of Members, the BIP-M review team interviewed and received input from six technical offices including

* Service delivery (M. Andrioli)
* Aeronautical Meteorology (G. Brock) through the CAeM expert team
* Marine Meteorology and Ocean Affairs (S. Grimes)
* Data Processing and Forecasting (A. Harou)
* Capacity Building: Hydrology and Water Resources (C. Caponi)
* Observing and Information Systems (F. Belda)

The different offices and commissions have a wide range of issues and mandates. But their responses can be summarized into perhaps a short list of thoughts on the BIP-M/MT review:

They felt that additional and regional topics should be added and include:

* polar meteorology;
* coastal weather;
* Storm surge;
* sea ice forecasting;
* marine satellite interpretation;
* climate;
* forecast verification;
* communication;
* Disaster risk reduction;
* Basic computer skills;

 Some of their thoughts and ideas about personnel:

* best forecasters may be the old class II position;
* create alternative paths to become an applied or specialist meteorologist including providing an assessment protocol;
* require less math and physics;
* Require continuing education: the forecaster needs to be an intelligent user of sophisticated products.

Meteorological Technician:

* BIP-MT really needs work and needs to be written for the future rather than the past;
* Create a higher level MT like an “assistant” forecaster?
* Enhance training in areas like remote sensing, data processing, automatic observing and WIGOS;
* Develop path to MT specialization like remote sensing or radar;
* MT position is for observation and analysis while Meteorologist position is for analysis and prognosis;

Perhaps the most complete input was provided by the CAeM expert team (K. Caesar and G Khambule) who sent a written response to the survey questions on behalf of the aeronautical community. They stressed several things including the fact that only 40% of the WMO Members are fully compliant with WMO 1083 for all of their staff and pointed out that changes to the BIP-M could go a long way to raising that percentage significantly. They support offering a career path where a candidate becomes an AMF by focusing primarily only on those topics and qualifications that are needed for the job. They also support the idea of an assessment as an alternative path for candidates to become an AMF or for others to transition to be an AMF.

My documents: wmo summary of surveys and interviews in support of the BIP spangler