

Integrated Services for Decision-makers

By Gerald Fleming

We live in the age of the Service Economy. In the 20th century, scientific and technological breakthroughs, particularly in computing and information technology, combined with the globalization of trade to effect a shift in many countries from manufacturing to service economies. Providing advanced services is now a major driver for the economic development of many nations. WMO too aims to strengthen service delivery through the new Commission for Weather, Climate, Water and Related Environmental Services and Applications.

But most meteorologists will claim that, from its inception, meteorology has focused largely on the development of service products – from the Storm Warnings originated by Fitzroy in 1861, through the METeorological Aerodrome Reports (METARs) and Terminal Aerodrome Forecast products (TAF) devised for the nascent aviation industry, to texts and charts for newspapers, down to today's websites and apps (Web applications). These outputs, however, have typically been condensed quanta of information, put out into the public domain with little knowledge of how they were actually taken up and used by recipients.

What more will the new WMO Commission for Service deliver? A paradigm shift – the integration of all weather, climate and water information and knowledge needed by decision-makers in one reliable, accessible source. Such integrated services can be defined as the provision of all relevant information that decision-makers need in their specific place, time and decision context, given the choices that they face. Thus, to begin to understand Integrated Services in meteorology, we need first to reflect on two other concepts: “Decision-makers” and “Choices.”

Decisions-makers

Hollywood has created dramatic images of decision-makers for us: the military leader deciding when to launch an attack; the rebels choosing when and where to stage an ambush; the police detective finally making sense of the clues and

launching an operation to foil a crime. But in real life, most decisions – and decision-makers – are far less dramatic. What remains true is that decision-making is nevertheless important for the smooth functioning of civil society, and for the safety and security of all citizens.

There are a myriad of decisions made each day on which meteorological intelligence has some bearing. The transport networks that enable mobility depend crucially on weather information, be it the salting of roads in winter, the safe operation of trains in high summer, the day-to-day decisions of the “traditional” user communities in marine and aviation. The generation of electrical energy, the supply of clean water, the safe treatment and disposal of sewage, the growth of our food and the husbandry of livestock – decisions in these areas and many more, which impact on our societies, are being made every minute of every day and could benefit from meteorological input. Then there is the summation of all the individual daily decisions we make on clothing, on what transport option to take, on what food to buy... small decisions on the face of it but adding up to substantial impact overall.

Choices

The fact that decisions are even possible means that there are “Choices” to be considered. It is important to realize that these choices are frequently informed by factors well outside the realm of meteorology. These have to be weighed up and considered side-by-side with meteorological components to produce a good and informed decision. There is nothing new in this! Over two-and-a-half thousand years ago the great Chinese military strategist Sun Tzu laid out five constant factors to be appraised in assessing the likely outcome of a war:

- The political direction
- The weather
- The lay of the land
- The quality of the leadership
- The discipline of the troops

The weather, clearly, must be seen in the holistic context of all the other variables which a decision-maker may have to consider. Thus we approach the idea of a “Weather Service”. Supplying a piece of paper with a statement of the likely weather is the provision of a product. Add to that piece of paper the opportunity to discuss its contents, the understanding by the forecaster of the options and limitations faced by the Decision-maker, the interpretation of the forecast in the light of those options and limitations and the outlining of realistic alternatives that the Decision-maker may be interested in pursuing – these are all markers of a “Service” focus that goes far beyond the supply of a product.

Reference: WMO for the 21st Century, 25, Vol. 68 (1) – 2019, WMO Bulletin.