

## WORLD METEOROLOGICAL DAY – 23 MARCH 2017

It is already a tradition that every year, since 1960, the World Meteorological Organization (WMO) celebrates the World Meteorological Day (WMD) on March 23rd. In this year, the WMD is focused on a more special issue: *Understanding Clouds*. Choosing this theme, the WMO wanted to highlight the enormous importance of clouds for weather, climate and water. Clouds are central to weather observation, representing the best indicator of the thermodynamic processes in the atmosphere. Thus, the clouds play a pivotal role in weather forecasts and warnings. Also, they are very important for entire climate system. In this context, clouds are one of the key uncertainties in the study of climate change. At the same time, clouds play a critical role in the water cycle and shaping the global distribution of water resources. On the lighter side, WMD will provide an opportunity to celebrate the inherent beauty and aesthetic appeal of clouds, which has inspired artists, poets, musicians, photographers and countless other enthusiasts throughout history (source: WMO, 2017).

Observations on the clouds date from very ancient times. More than two millennia ago, Aristotle studied clouds and wrote a treatise addressing their role in the hydrological cycle. After the appearance of the first national meteorological networks, appeared the need to equalize the meteorological observations, including those on the clouds. The first classification of clouds was made by the amateur meteorologist Luke Howard, living in England, which wrote in 1803 *The Essay on the Modification of Clouds*. It is important to mention that the present international system of Latin-based clouds classification is due to this author. Then, the first attempts to realize a cloud atlas began to appear. The actual International Cloud Atlas has its roots in the late 19<sup>th</sup> century. It was revised on several occasions in the 20<sup>th</sup> century, most recently in 1987, as a hard copy book, before the advent of the Internet.

So as Petteri Taalas, the Secretary-General of WMO said in his message dedicated to the WMD 2017, a new edition of the International Cloud Atlas will be launched on 23 March 2017. In this Atlas there are hundreds of images of clouds, including a few newly classified cloud types. In addition, the Atlas contains important information on other meteorological phenomena such as rainbows, halos, snow devils and hailstones. The new Atlas includes images contributed by meteorologists, cloud watchers and photographers from around the world. For the first time ever, the Atlas has been produced in a digital format and is accessible via both computers and mobile devices. Thus, the Atlas serves as an essential training tool for professionals working in meteorological services and companies, and in sectors such as aviation and shipping.

The new International Cloud Atlas comprises a Cloud Identification Guide, which is presented in the form of an illustrated scheme or flow-chart. This scheme allows the identification of all cloud types, divided in *families (étages or levels)*, *genera*, *species*, *varieties*, *supplementary features*, *accessory clouds and mother clouds*. Simultaneously, in the Guide appear a few new terms. Thus, a new species is proposed for the roll clouds: *volutus*, which means rolled in Latin. Also, the form *asperitas* was added to the

supplementary features, in order to describe a dramatic formation that looks like an upturned roughened sea surface. Finally, there is a new category of special clouds: *homogenitus* (from the Latin words *homo* and *genitus*), term that defines some clouds of anthropogenic origin, like the contrails from aircrafts (source: WMO, 2017).

The WMO emphasize that the appearance of the new International Cloud Atlas was possible due to the generosity of the Hong Kong Observatory and the hard work of a special WMO Task Team, which spent nearly three years revising the text, collecting and classifying images and data.

In conclusion, it can be said that the subject of WMD 2017 represents an inspired choice, having a more applied character for the current activity in the atmosphere surveillance. A correct recognition of the types of clouds at all the meteorological stations around the world is a task not just easy, but very important, especially for the weather prediction. Without a doubt, the appearance of the new International Cloud Atlas represents a major contribution for the fulfillment of the most important WMO mission, that understanding weather and climate phenomena to protect life and property, and assist communities to become more resilient.

The issues mentioned above must be viewed in the context of the actual Global Warming that continued in the year 2016, too. According to the reports of highly prestigious institutions (Met Office, NOAA, NASA, ECMWF) the WMO shows that the year 2016 continued the chain of the warm years that followed the 1970's, especially after 2000. In fact, the year 2016 was the hottest on record, ahead of 2015, 2014, 2010, 2005 and 1998. In 2016, the global average air temperature over land and sea surface was about 0.83°C above the average of 14.00°C for the 1961-1990 reference period and about 1.1°C higher than the pre-industrial period. On this background, throughout 2016 occurred numerous extreme weather events, which caused huge socio-economic disruption and losses (source: WMO Press Release no. 1/2017). Among these weather events with major impacts can be mentioned: the Hurricane Matthew (eastern Caribbean and east coast of the United States, in October); major heat waves (Thailand in April, Middle East and north Africa in July); important droughts (Southern Africa in January); significant floods (the Yangtze basin in China, Sri Lanka, the Niger River basin in Mali); damaging wildfires (state of Alberta, Canada, in May); etc. Romania was also affected by dangerous meteorological and hydrological phenomena: storms with abundant precipitation followed by floods (in spring and summer), tornadoes (in June), etc.

Finally, we would like to greet all the people involved in the activity of meteorology and climatology and wish that the year 2017 bring many satisfactions in their professional activity, so that they may contribute to the achievement of the objectives mentioned in the works dedicated to the World Meteorological Day 2017.

Florin MOLDOVAN, Ph.D Associate Professor