

S01-1

Prospects and expectation towards the era when the next generation geostationary meteorological satellites' global array will be in operation

James F.W. Purdom

Chair, International Conference Steering Committee

Within the next few years a new generation of geostationary satellites will ring the globe, some with lightning mappers, some with sounders, and most with 15 or 16 very similar high spatial resolution spectral channels: this constellation provides our community with tremendous opportunities as well as some great challenges. This talk will address some of those challenges and opportunities.

16 channel imagers, as with Himawari-8, offer the possibility of 65,535 ways to combine those channels (number includes using each independently)!, at least every 10 minutes (full disc) and at times as frequently as every one to two minutes (special events). As we strive to take full advantage of the new generation of meteorological geostationary satellites, marked challenges face us in the ways we approach data handling, science, product development, training and utilization. Aside from the well thought out uses of the various channels based on past experience with research satellite data (mainly polar orbiting), with the frequency of this new geostationary satellite imagery we must now think in terms of new multi-channel products, derived from mathematical analysis, at frequent intervals to be used in specific application areas. Numerous product areas, such as precipitation estimation, cloud motion vector derivation, feature tracking, severe storm identification and nowcasting in general will benefit from the generation of satellite data, but only with a strong emphasis on advanced product development to take advantage of using the various channels in multi-channel product formats.

As we improve our current capabilities to meet user needs, other sciences and technologies that have major impacts on humanity will also progress over ensuing decades (computers, food production, water and power management, greenhouse gas monitoring, transportation, etc.). All of this will occur as the world's population soars toward nine billion people during the next 35 years, placing increasing stress on our planet that includes human migrations to coastal areas occurring at a time of rising sea levels. These factors will all place demands for advanced, and in many cases unanticipated product streams from our meteorological

and environmental satellite systems! The challenge of keeping a vibrant and up-to-date product stream will require new ways of approaching all aspects of the data – science – product – user interfaces. We are up to meeting the challenge, but we must meet it as a community.