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Author: Mr. Damien Baclet
ISAE-Supaero University of Toulouse, France

Mr. Benoit Geffroy
ESA - European Space Agency, France

UNDERSTANDING A NEW PATH OF COMMERCIALIZATION FOR SPACE SCIENCE DATA PRODUCTION THROUGH THE PRISM OF EARTH OBSERVATION TRAJECTORY: IMPLICATIONS ON INSTITUTIONAL STRATEGIES

Abstract

Commercialization of space activities is not new. Neither is that of Earth observation data production, although an acceleration is perceptible nowadays. On the contrary, space science data seems, at first sight, to escape this phenomenon. Mainly allowing the development of fundamental research, a public good par excellence, there are no reasons to question the institutional hegemony in this sector. However, emergence of scientific and economic issues invites us to leave this naivety behind.

Evolution of Earth observation data production is a compass to understand the upcoming commercialization of scientific space data production. Technological maturation and miniaturization lead to lower costs and allow risk-taking, with the prospect of profit. At the same time, characteristics of supply are improving significantly to provide consumers with more accurate data, faster. Less latency and time-to-data, defined as the period between the formulation of a need and its satisfaction by tangible data, are the primary drivers of demand and tend to minimize technical requirements. Furthermore, new methods of data analysis multiply areas of impact. The growth in data production is then colossal, with a net increase in the commercial share. This new configuration leads to a sudden shift that puts agencies in difficulty, requiring a mutation of their activities in this field characterized by three key words: accompany, complement and escape.

In the light of this historical trajectory, it appears that the production of space science data will follow a similar path. Private companies take advantage of the same trends, from miniaturization to time-to-data mitigation expectations, but also of institutional weaknesses in terms of ambition, timeframe and effective access to data, to carve a place for themselves. Moreover, the economic stake of this scientific data is perceptible in a growing number of sectors. The "applicative" sciences, with Space Weather which provide real-time models sought by many entities, or space stations, are already prey to this commercialization. Basic research, like astronomy, is not immune to this phenomenon. New business models are emerging and lead us to think about a massive development in this direction.

Thus, institutional parties must think about their adaptation strategy through the prism of their action in Earth observation. They need to accompany to capture these disruptive initiatives, complement them to protect scientific production, and escape to optimize their programs and adopt new ambitions. Finally, regulation seems to be a prerequisite to avoid the commercialization not of scientific data production, but of science itself.