

IAF SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)
Satellite Commercial Applications (3)

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CLIMATE SERVICES OF THE FUTURE: SUPPORTING INTEGRATED AND SUSTAINABLE
SOLUTIONS**Abstract**

With considerable ground- and space-based infrastructure for climate monitoring being consolidated over the past decades, the technology-push paradigm for climate-related space-systems is evolving towards increasingly demand-driven models. Consistent with this, the focal point of the services frameworks involved are moving beyond the purely technological aspects to meet user-needs through integrated and commercial applications. Value-adding to the already flourishing supply chain is a process of turning these climate-related technological systems, and the immense quantity of data produced, into operational services which fulfil user demand and societal needs. Ensuring climate service sustainability, both financially and organisationally, as well as improving upon the technological feasibility of such services is the necessary sequential step in turning these climate-related observation systems into a prosperous climate services market. However, the structures and processes under which this is achieved can vary dependent on the demand, and for the most part identifying the user-base is a pressing issue which needs to be addressed. Drawing on extensive research combining technical, business and policy perspectives, the overarching objective of this paper is to provide an in-depth analysis of potential frameworks for the future functioning of climate services in both public and private contexts. In doing so, the paper puts the spotlight on the shift towards creating the appropriate platforms for user identification, as well as on implementing user-driven models in both policy and practice which is crucial to the long-term sustainability of any climate service. In terms of addressing demand, this paper outlines climate services' potential to be utilised by various different groups of decision makers - from national and international policymakers, commercial organisations, right down to the individual citizen - with a plethora of application areas. Each application area for service models serves a particular purpose for a specified consumer, and for this reason public, private, or joint public-private models of developing climate services are able to be simultaneously implemented in respects to their function and users. This does not only bring implications for the sources of funding and the eventual user base, but calls for an adequate and specialised framework for strategy and governance to make each supply model possible. The original character of this paper comes in that it provides novel and integrated approaches to the evaluation and progression of the growing, but still undeveloped climate service sector; its technological capabilities, interconnecting the network of key stake holders, and identifying demand and the essential user base.