

EARTH OBSERVATION SYMPOSIUM (B1)  
Earth Observation Applications and Economic Benefits (5)

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EARTH OBSERVATION FOR ONE HEALTH: A DECISION-MAKING GUIDE

**Abstract**

One Health is an emerging concept in the health sciences that approaches human, animal and environmental health from a single framework. This policy approach is grounded in the knowledge that approximately 70 percent of emerging diseases in humans originate from other species, and that this species crossover is precipitated by stresses to environmental systems such as habitat and biodiversity loss (Jones et al., 2008). Space-based satellite remote sensing tools apply well to this approach, due to the multitude of variables that can be measured across borders in real-time. However, the task of applying the correct combination of space-based remote sensing systems, data analysis and infrastructure to One Health projects (such as real-time disease surveillance) is an onerous task for decision-makers in the field. This paper presents a summary of the available information on satellite remote sensing data sources relevant to the One Health approach. Tradeoffs among cost, property rights, accuracy and flexibility of space-based remote sensing data sources are evaluated, with optimization strategies presented for specific One Health surveillance and response contexts. This analysis will guide the decision-making process for leaders in the health and environmental sciences as they incorporate and refine satellite remote sensing tools in their systems architecture.