Space-Based Observations for Understanding Changes in the Arctic-Boreal Zone

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Poster Abstract. Observations taken over the last few decades indicate that dramatic changes are occurring in the Arctic-Boreal Zone (ABZ), which are having significant impacts on ABZ inhabitants, infrastructure, flora and fauna, and economies. While suitable for detecting overall change, the current capability is inadequate for systematic monitoring and for improving process-based and large-scale understanding of the integrated components of the ABZ, which includes the cryosphere, biosphere, hydrosphere, and atmosphere. Such knowledge will lead to improvements in Earth system models, enabling more accurate prediction of future changes and development of informed adaptation and mitigation strategies. In Duncan et al. (2020), we review the strengths and limitations of current space-based observational capabilities for several important ABZ components and make recommendations for improving upon these current capabilities. We recommend an interdisciplinary and stepwise approach to develop a comprehensive ABZ Observing Network (ABZ-ON), beginning with an initial focus on observing networks designed to gain process-based understanding for individual ABZ components and systems that can then serve as the building blocks for a comprehensive ABZ-ON.

References

Duncan, B. N., Ott, L. E., Abshire, J. B., Brucker, L., Carroll, M. L., Carton, J., et al. (2020). Space-based observations for understanding changes in the arctic-boreal zone. Reviews of Geophysics, 58, e2019RG000652. https://doi.org/10.1029/2019RG000652.