Global wind profiling with space-based Doppler wind lidar for improvement of numerical weather prediction

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Wind is one of key meteorological elements describing the atmospheric state. Global wind profile observation is important to significantly improve the initial conditions essential for numerical weather prediction (NWP). Current space-based wind observing system has a problem that it is biased to observation related to temperature and water vapor compared with wind observation. Space-based Doppler Wind Lidar (DWL) can provide global wind profiles, which is a promising technique to fill the current gap. ESA successfully launched the first space-based DWL Aeolus in August 2018. Target mission life of Aeolus is three years. Aeolus provides us wind profiles. The wind profiles obtained by Aeolus showed many impacts on NWP. The working group on Japanese space-based DWL has made feasibility study for the space-based DWL for future global wind profiling since 2011. In the presentation, we will report on feasibility studies for the space-based DWL conducted in 2019.

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