

Ground and airborne methane measurements with an optical parametric amplifier

Kenji Numata

Abstract

We report on ground and airborne atmospheric methane measurements with a differential absorption lidar using an optical parametric amplifier (OPA). Methane is a strong greenhouse gas on Earth and its accurate global mapping is urgently needed to understand climate change. We are developing a nanosecond-pulsed OPA for remote measurements of methane from an Earth-orbiting satellite. We have successfully demonstrated the detection of methane on the ground and from an airplane at ~11-km altitude.