



## **Estimation of regional photovoltaic power generation using Japan's new geostationary meteorological satellite Himawari-8**

Hideaki Ohtake and Fumichika Uno

National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan (hideaki-ohtake@aist.go.jp)

Large photovoltaics (PV) power systems have been penetrated after an introduction of feed-in-tariff in 2012 in Japan. In a current situation for PV power monitoring, however, PV power generations from residential roof-top, ground-mounted PV power systems and large-capacity PV power systems have not been observed directly because monitoring instruments of PV power generation have not been installed well.

This study conducted an estimation of PV power generation for a regional area with PV power capacity penetration ratio database which provided from Agency for Natural Resource and Energy using a geo-stationary satellite, Himawari-8, for the first time. Furthermore, frequency of rapid time-variations of PV power generation (called as "ramp events") also was investigated in both current and future status (in a condition of large PV installation). Frequency of ramp event of PV power generation for both cases is investigated, suggested that ramp rates of PV power generation for both ramp up and ramp down in future PV power installation case are supposed to increase compared with that in current PV power installation.