Optical Satellite Communication
光衛星通信

光衛星通信ダイバーシチ

- Laser beam is blocked by clouds

one of the most efficient approach

Site Diversity

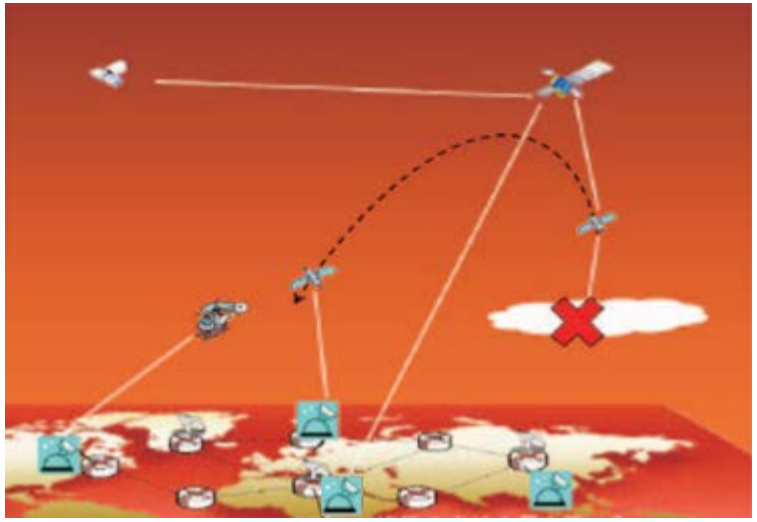


Fig 2: concept image of site diversity [2]

- The method improving the probability of connection between the satellite and terrestrial by avoiding contact with the clouds .
- Previous study deal with only ground station which is fixed infrastructure.

Proposed Scheme

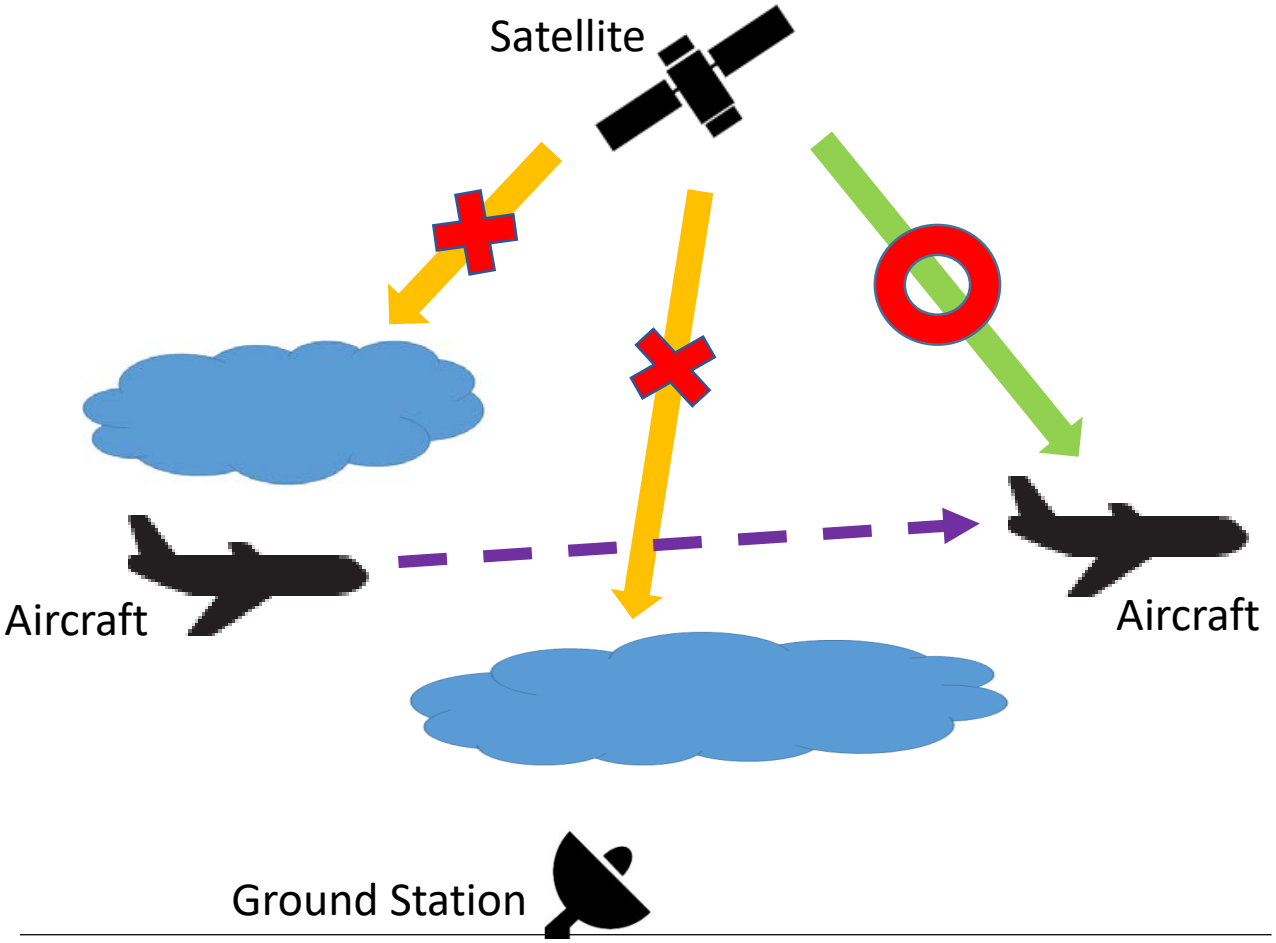


Fig 3: System architecture

Cloud Data

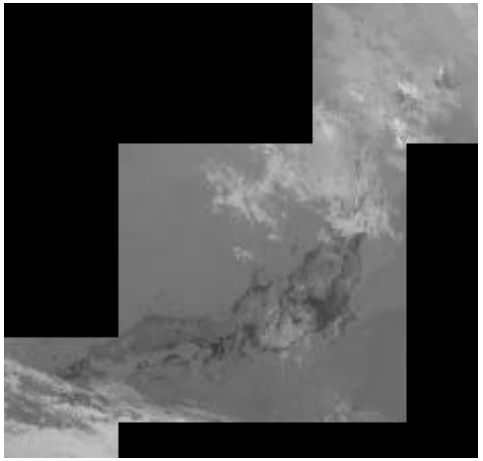


Fig 5: Target area [3]

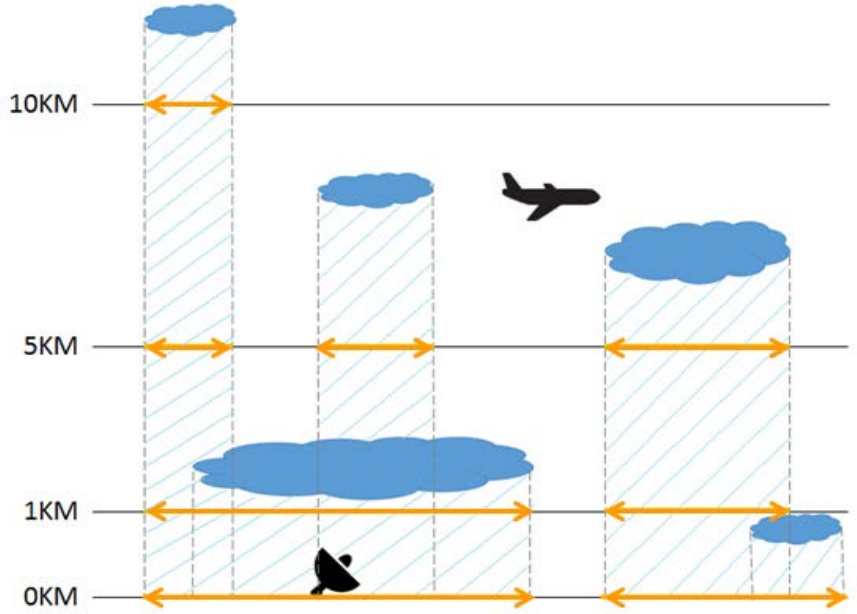
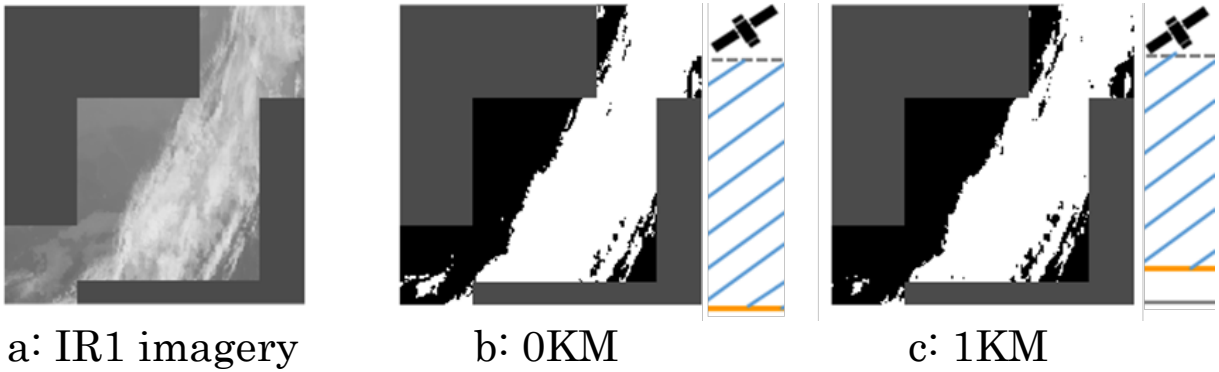


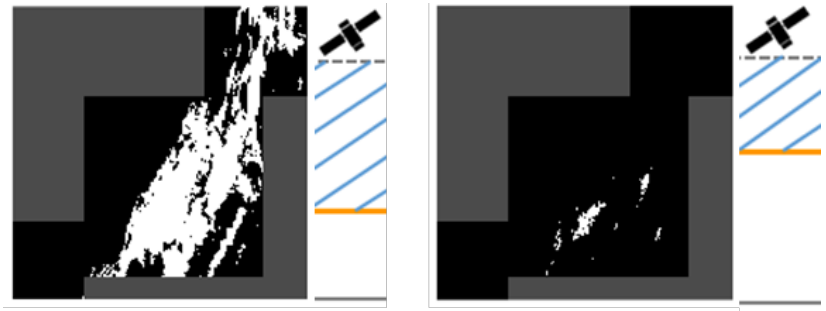
Fig 6 : Concept image of altitude

Data	Infrared imagery (11μm) of Himawari-8
Source	Kochi university's weather information page
Observation period	1st May 2016 ~ 30th June 2016
Area	Around Japan
Altitude [km]	0, 1, 5, 10

Distribution of Cloud



a: IR1 imagery b: 0KM c: 1KM



d: 5KM e: 10KM

White zone: cloud exists above each altitude
Black zone: cloud does not exist above each altitude

Fig 9: Distribution of the existence of cloud above each altitude

Distribution of Cloud

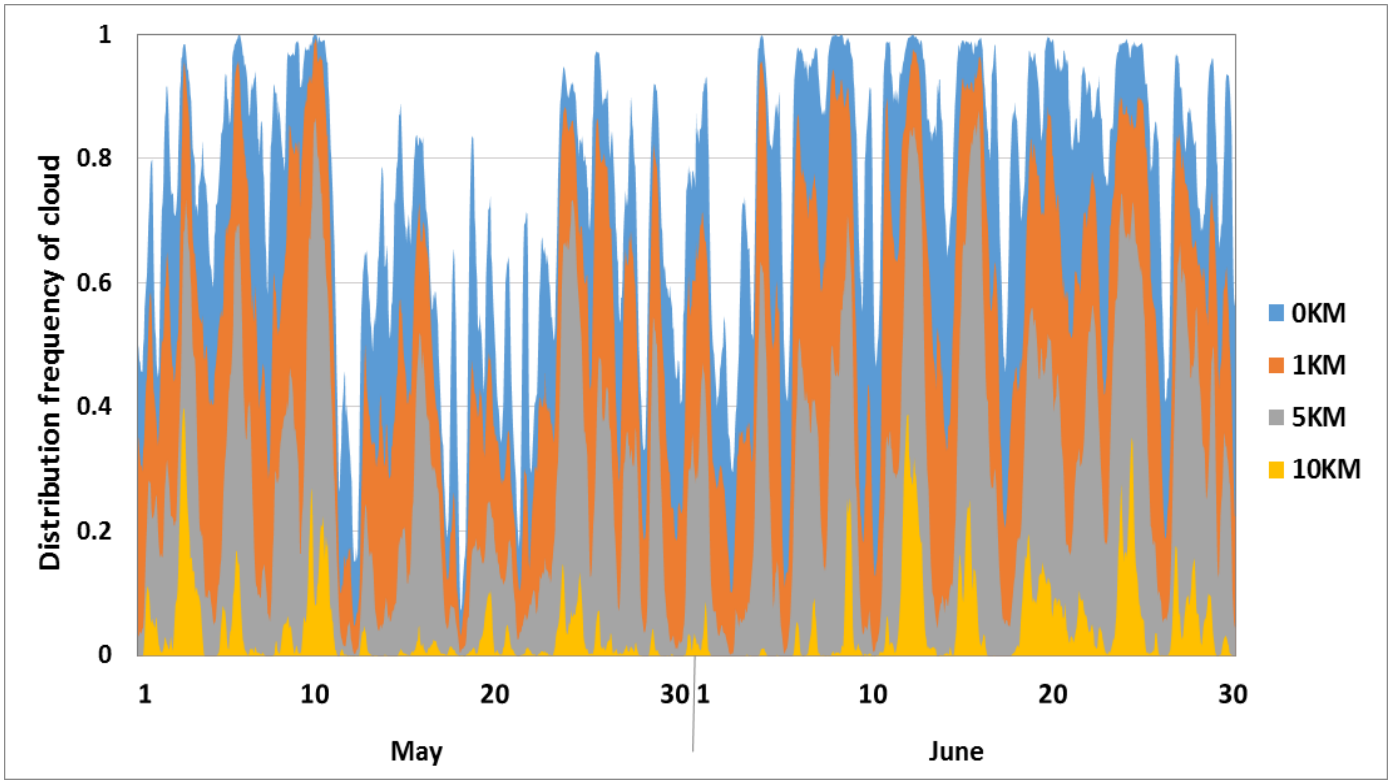
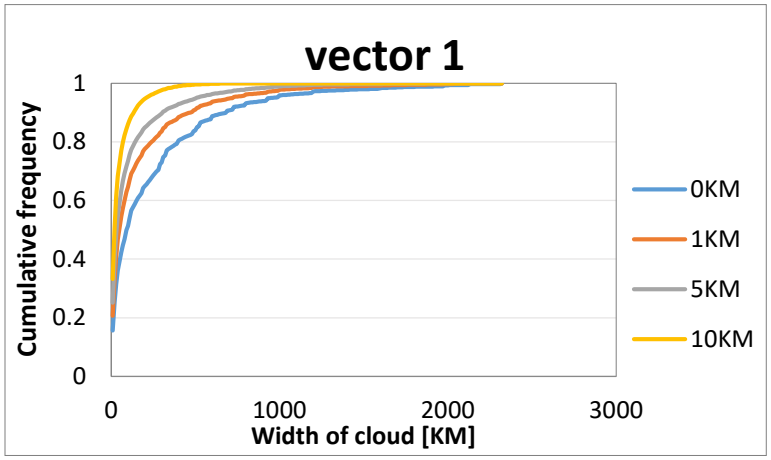


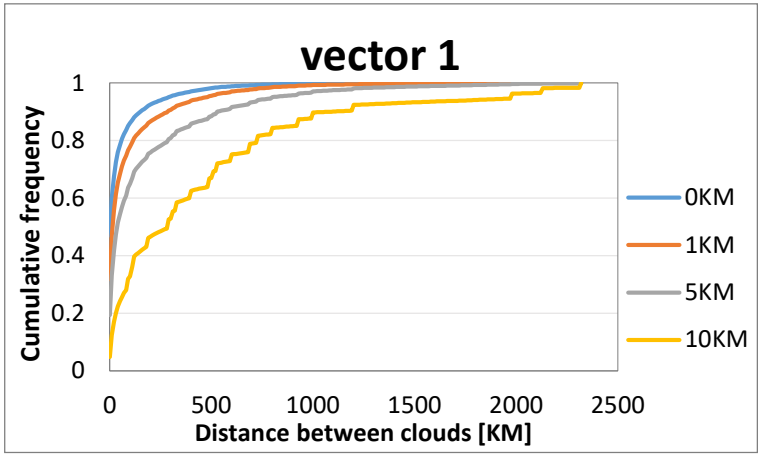
Fig 10: Distribution of cloud

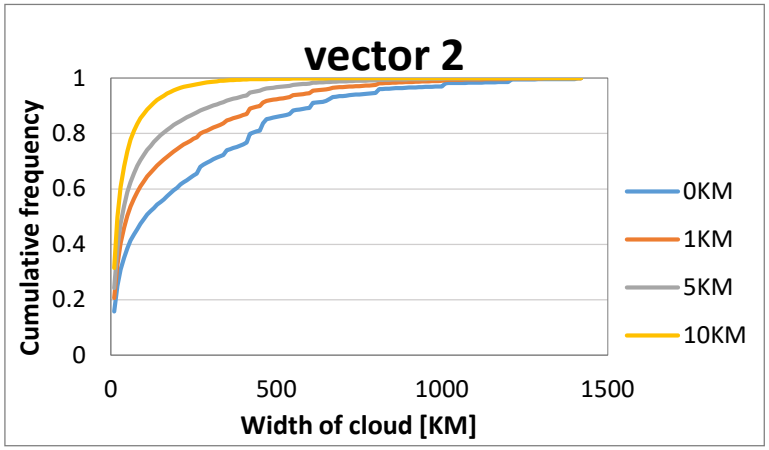
Table 1: Average distribution frequency of cloud

	0KM	1KM	5KM	10KM
Average distribution frequency of the cloud	0.761544	0.560364	0.29763	0.04416

Width of Cloud and Distance Between Clouds







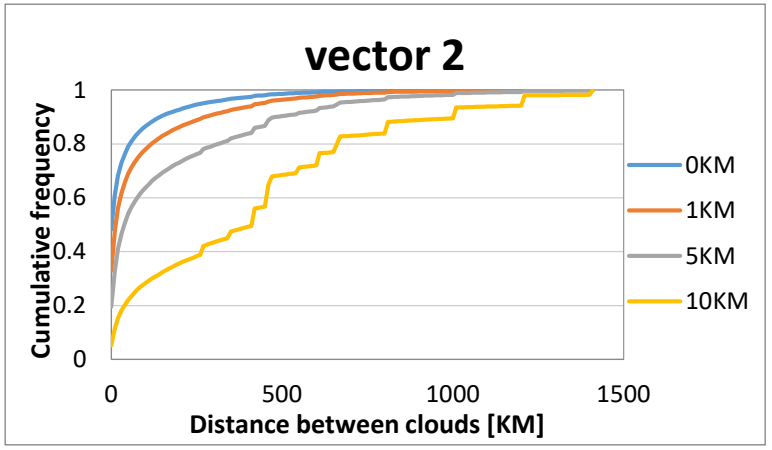


Fig 11: Distribution of width of cloud and distance between clouds