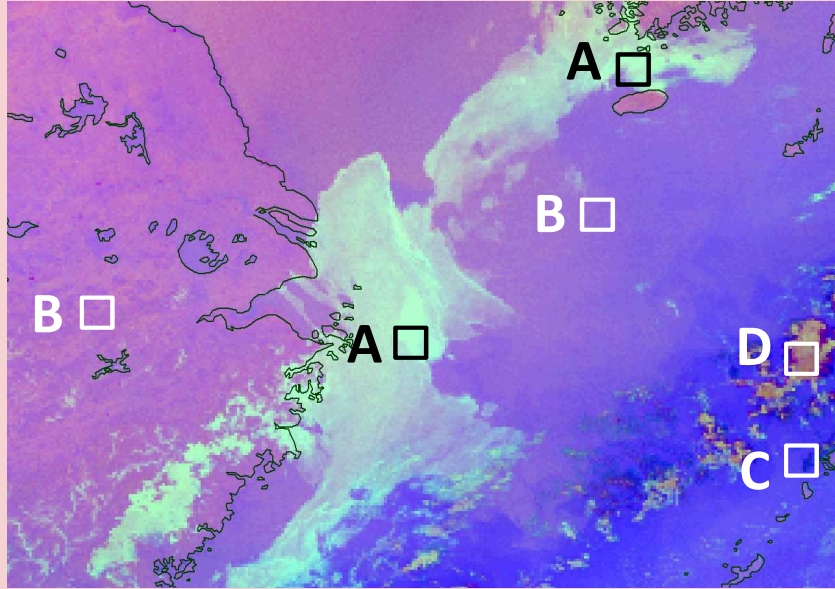
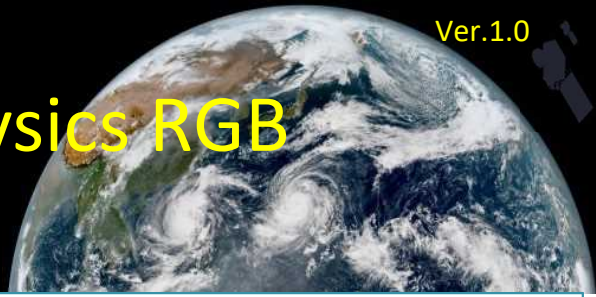


# Himawari Night Microphysics RGB Quick Guide



Fog/low-level clouds around the East China Sea and the Yellow Sea (21:00 UTC, 27 March 2018)

- A  : fog/low-level clouds
- B   : land and ocean (cloud-free);
- C  : thin cirrus clouds
- D  : thick mid-level clouds

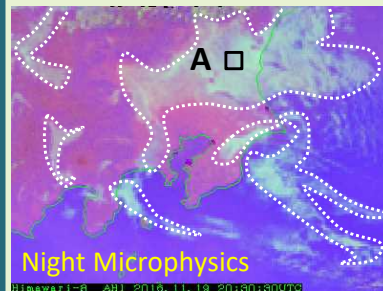
**Main applications:** Cloud analysis, especially in detection of fog/low clouds at nighttime

**Benefits:**

- High contrast between water clouds (fog/low clouds) and cloud-free surfaces
- Efficiency for nighttime cloud analysis
- Identification of fire hotspots

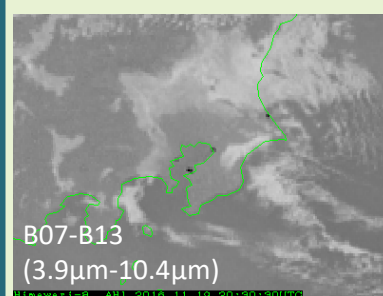
**Limitations:**

- Available during nighttime only (all clouds appear magenta during the daytime)
- Difficulty of distinguishing between fog and low clouds from Night Microphysics RGB data alone
- Effect on cloud colors (especially fog/low clouds) and surfaces from thermal conditions (i.e., latitudinal, seasonal and diurnal variations)



Fog/low-level cloud around the Kanto Plain, Japan (20:30 UTC, 19 November 2016)

Fog and low-level clouds appear bright in difference imagery (bottom), thereby supporting identification of nighttime fog. In Night Microphysics RGB (top), fog/low-level clouds are clearer with a bright-greenish hue (dashed lines).

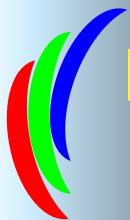


A  : (thick) low-level cloud or fog

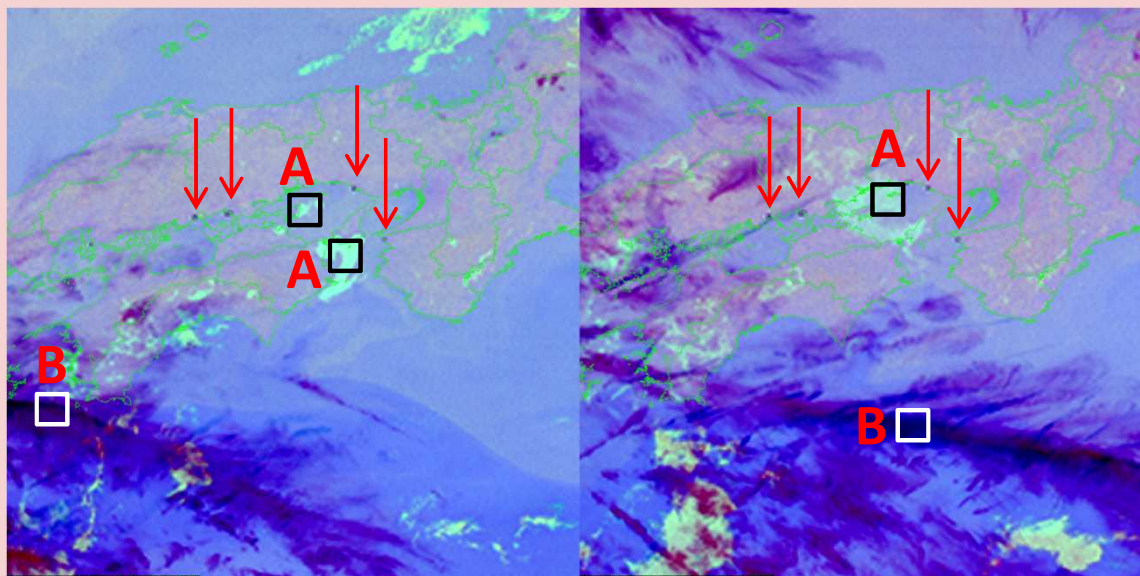
## RGB composition with recommended thresholds and related specifications for Night Microphysics RGB

Color	AHI bands	Central wave length [μm]	Min [K]	Max [K]	Gamma	Physical relation to	Smaller contribution to signal of	Larger contribution to signal of
Red	B13-B15	10.4-12.4	-3.0K	7.5K	1.0	Cloud optical thickness	Thin clouds	Thick clouds
Green	B07-B13	3.9-10.4	-7.0K	2.9K	1.0	Cloud phase	Thin ice clouds	Thick fog/ water clouds
Blue	B13 (inverse)	10.4	243.7K	293.2K	1.0	Cloud top temperature Surface temperature	Cold clouds Cold surface	Warm clouds Warm surface





# Himawari Night Microphysics RGB Quick Guide

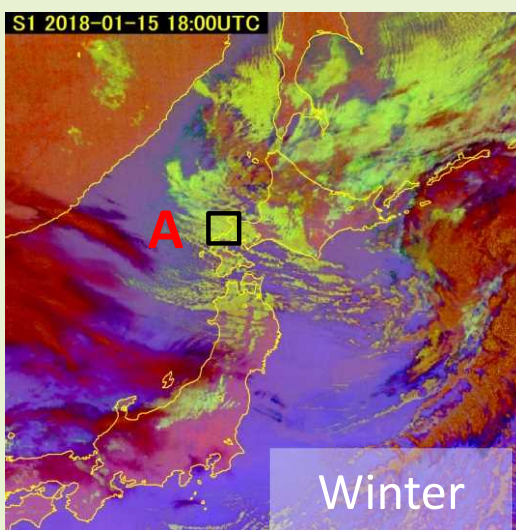
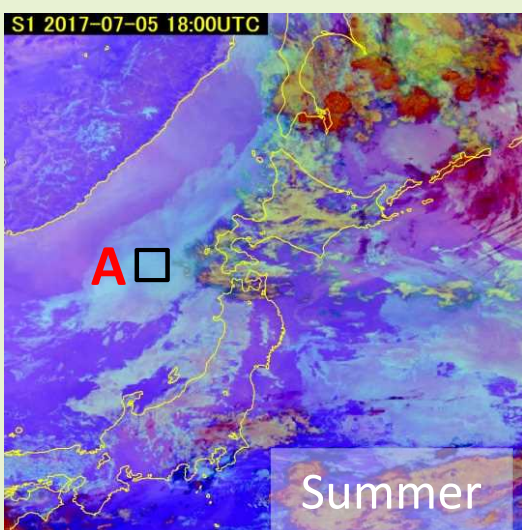


Fog and thin cirrus clouds around Japan's Seto Inland Sea based on Night Microphysics RGB (16:10 UTC (left) and 20:45 UTC (right), 30 April 2018)

A  : fog or low-level clouds

B  : thin cirrus clouds

Arrows indicate darkish hotspots considered to be artificial sources of heat (e.g., factories and industrial areas).



Colors of clouds (especially fog/low clouds) and surfaces are affected by thermal conditions (i.e., latitudinal, seasonal and diurnal variations). In mid-/high latitudes, clear seasonal differences are seen between summer and winter.

A   : low-level cloud/ fog

## Color interpretation for Night Microphysics RGB

Color	Interpretation
<span style="background-color: darkred; display: inline-block; width: 15px; height: 10px;"></span>	Cold, thick, high-level cloud
<span style="background-color: darkred; border: 1px dotted black; display: inline-block; width: 15px; height: 10px;"></span>	Very cold, thick, high-level cloud*
<span style="background-color: darkblue; display: inline-block; width: 15px; height: 10px;"></span>	Thin cirrus cloud
<span style="background-color: brown; display: inline-block; width: 15px; height: 10px;"></span>	Thick, mid-level cloud
<span style="background-color: darkgreen; display: inline-block; width: 15px; height: 10px;"></span>	Thin, mid-level cloud
<span style="background-color: lightgreen; display: inline-block; width: 15px; height: 10px;"></span>	Low-level cloud (cold atmosphere, high latitude)
<span style="background-color: lightblue; display: inline-block; width: 15px; height: 10px;"></span>	Low-level cloud (warm atmosphere, low latitude)
<span style="background-color: blue; display: inline-block; width: 15px; height: 10px;"></span>	Ocean
<span style="background-color: purple; display: inline-block; width: 15px; height: 10px;"></span>	Land

\*Regarding very cold (around 220 K in general) thick clouds such as Cb cloud tops, contribution of green beam is added to contribution of red beam. Band 7 shows discrete values at very low temperature. Hence very cold thick clouds appear in reddish color with yellow (red + green) scattered pattern.