Detecting Water Vapour Features from GEO Orbit

Convection Working Group
19 May 2022
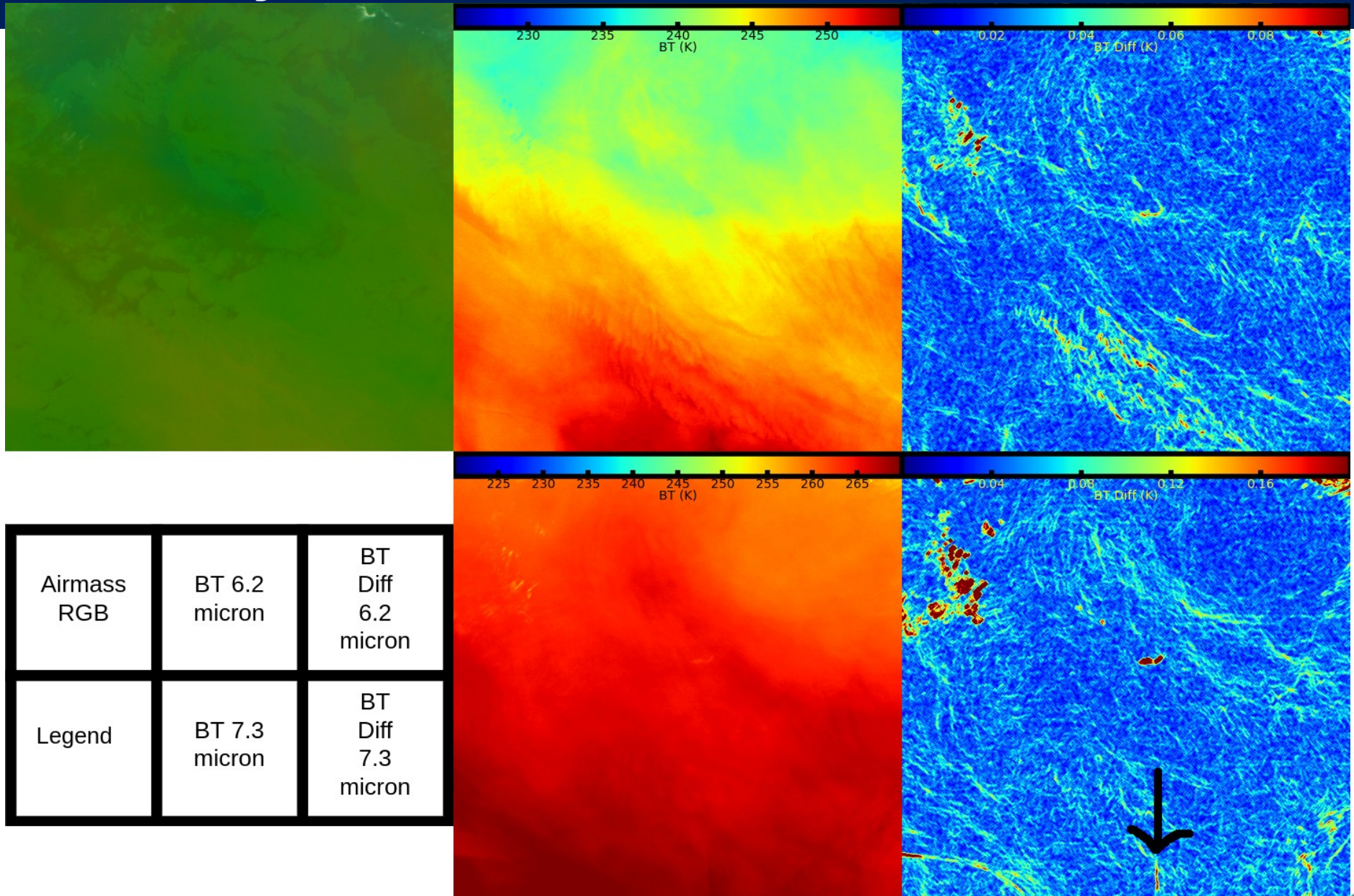
Xavier Calbet, Ján Kaňák, Martin Setvák

Highlighting WV Features

- **Spatially**:
  - Via «STDV filter»
  - Other well known image edge detection algos
- **Temporally**:
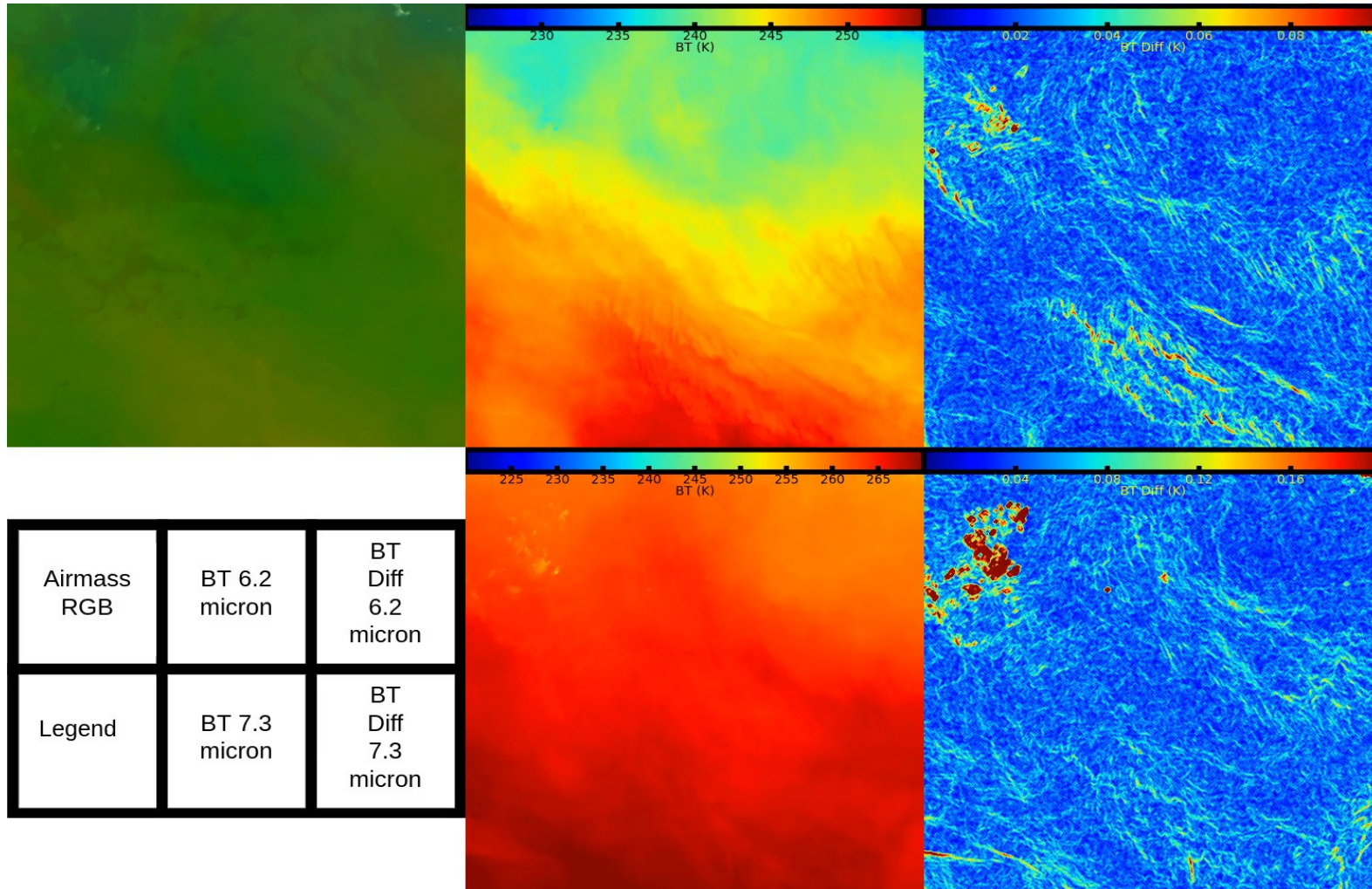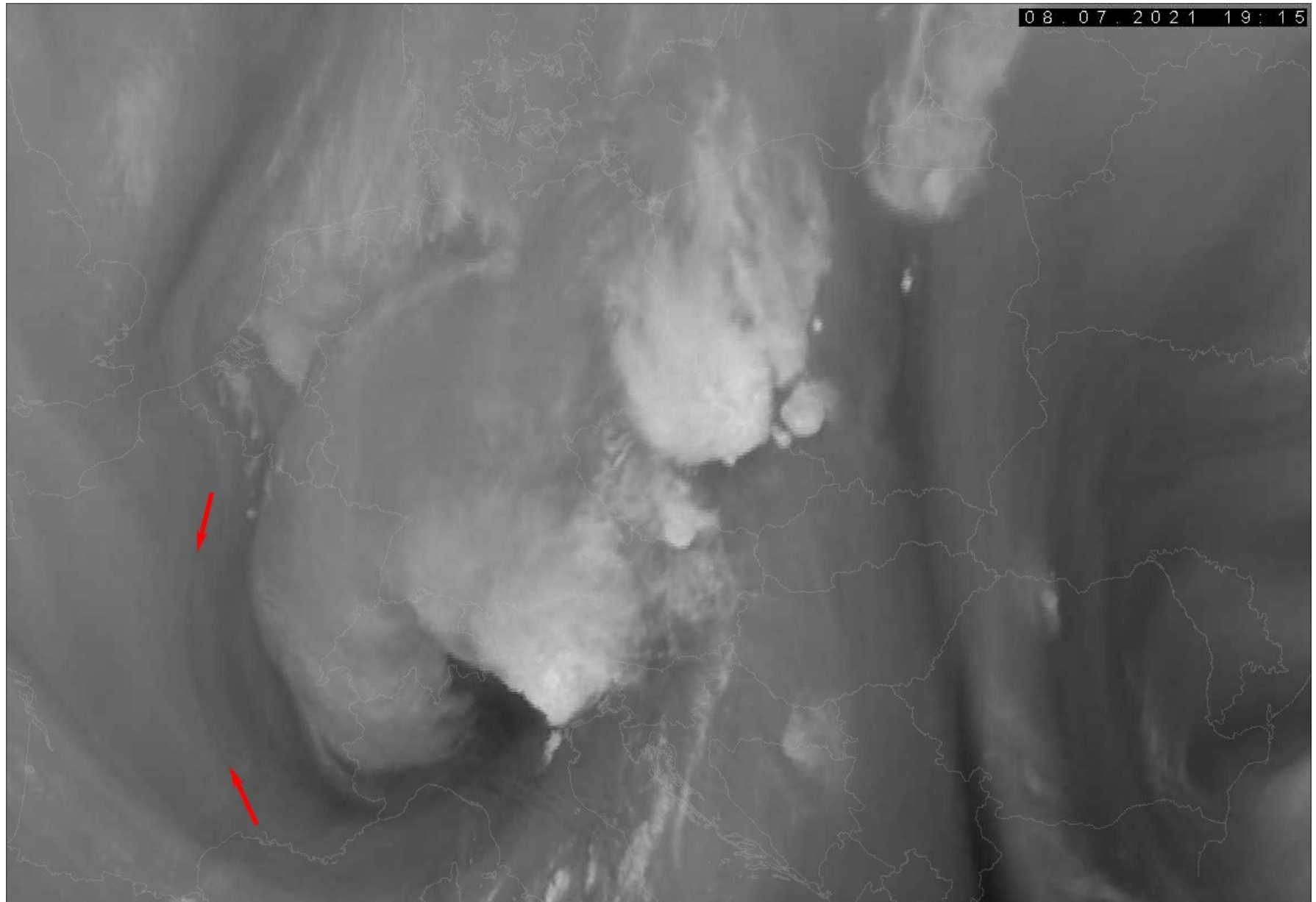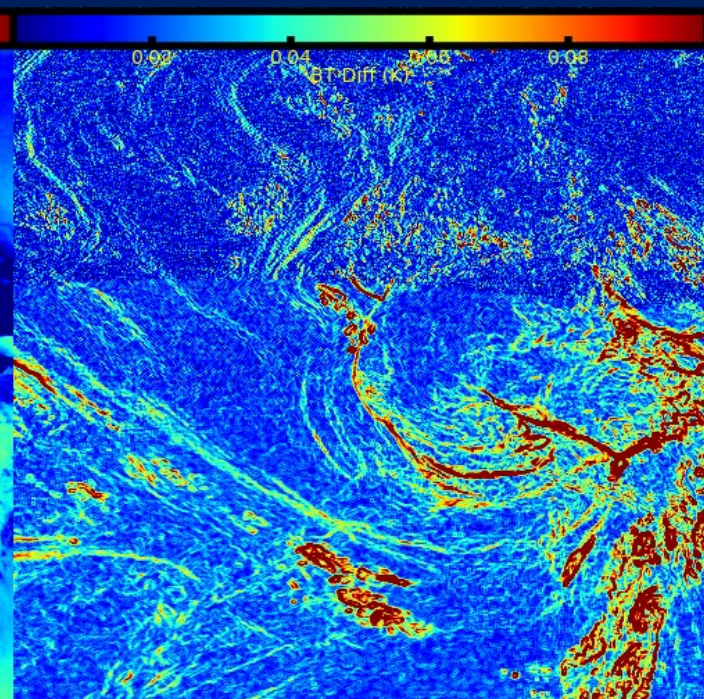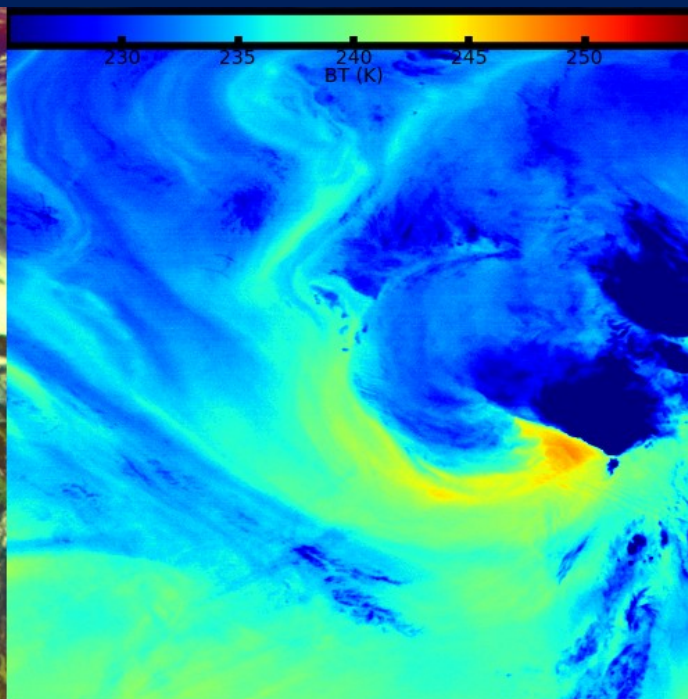 - Using the difference between one image and the next in time

Gravity Wave
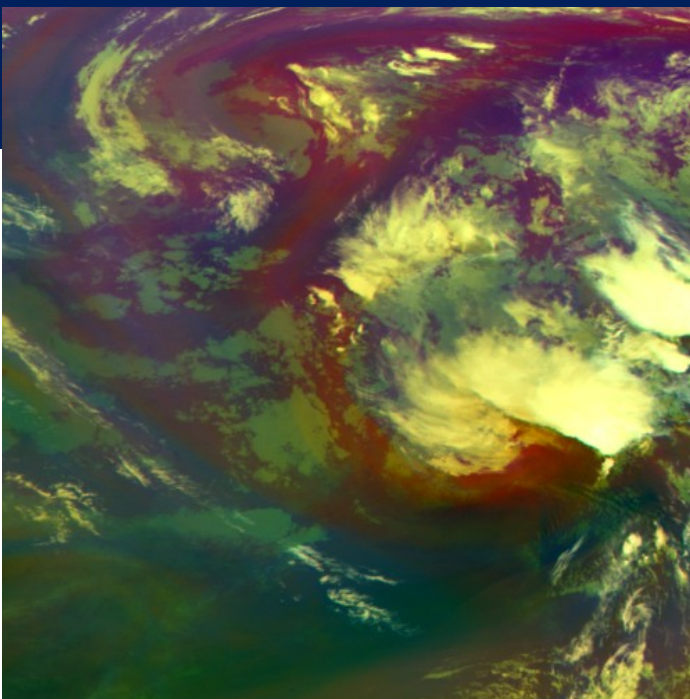
		BT Diff 6.2 micron
Airmass RGB	BT 6.2 micron	
Legend	BT 7.3 micron	BT Diff 7.3 micron

Gravity Wave

Airmass RGB	BT 6.2 micron	BT Diff 6.2 micron
Legend	BT 7.3 micron	BT Diff 7.3 micron

Gravity Wave from Deep Convection

		BT Diff 6.2 micron
Airmass RGB	BT 6.2 micron	
Legend	BT 7.3 micron	BT Diff 7.3 micron

Gravity Wave from Deep Convection

Airmass RGB	BT 6.2 micron	BT Diff 6.2 micron
Legend	BT 7.3 micron	BT Diff 7.3 micron
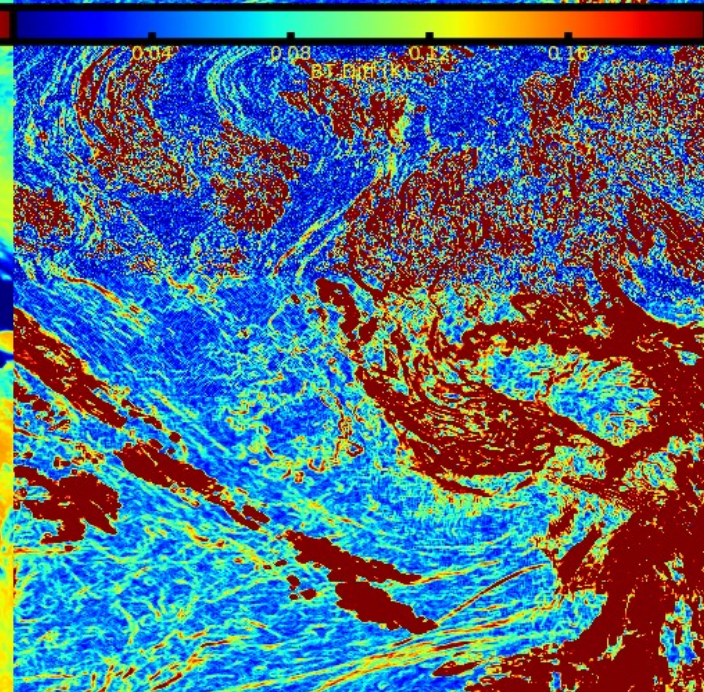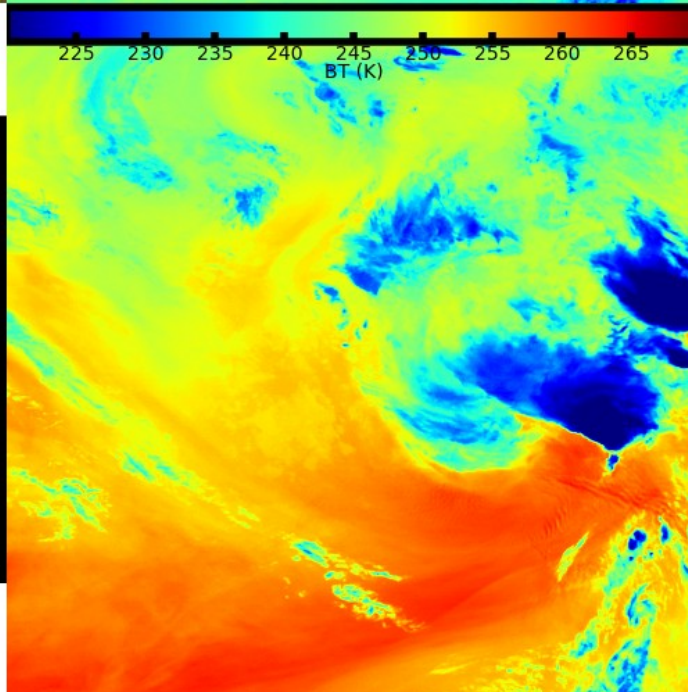
Sound Wave from Hunga Tonga

MSG3-RSS_WV62_WV73_20220115_2310_UTC

Ján Kaňák, SHMI, Martin Setvák, CHMI. Data: EUMETSAT

Sound Wave from Hunga Tonga

MSG3-RSS_WV62_WV73_20220115_1500_UTC

Ján Kaňák, SHMI, Martin Setvák, CHMI, Data: EUMETSAT
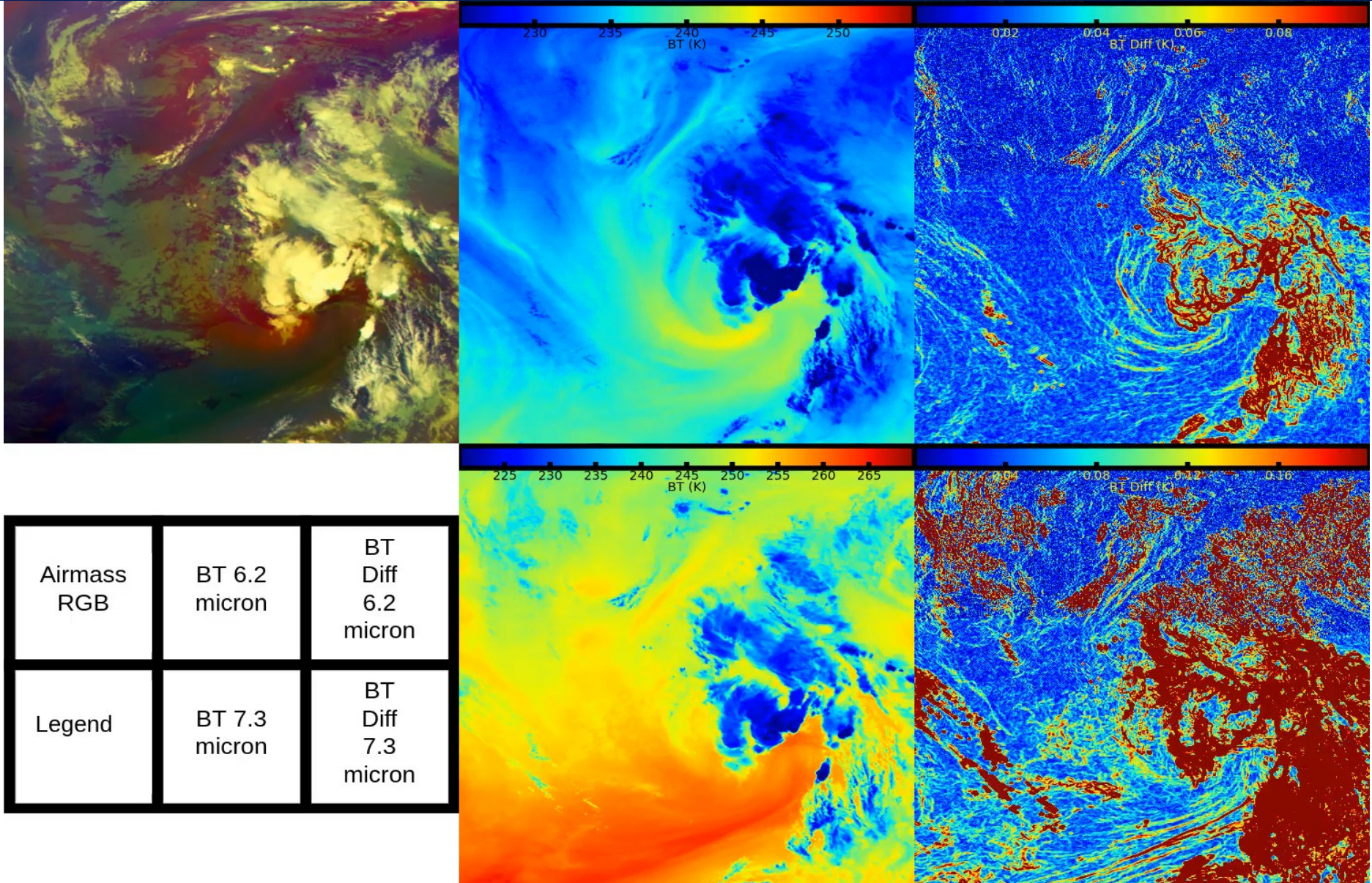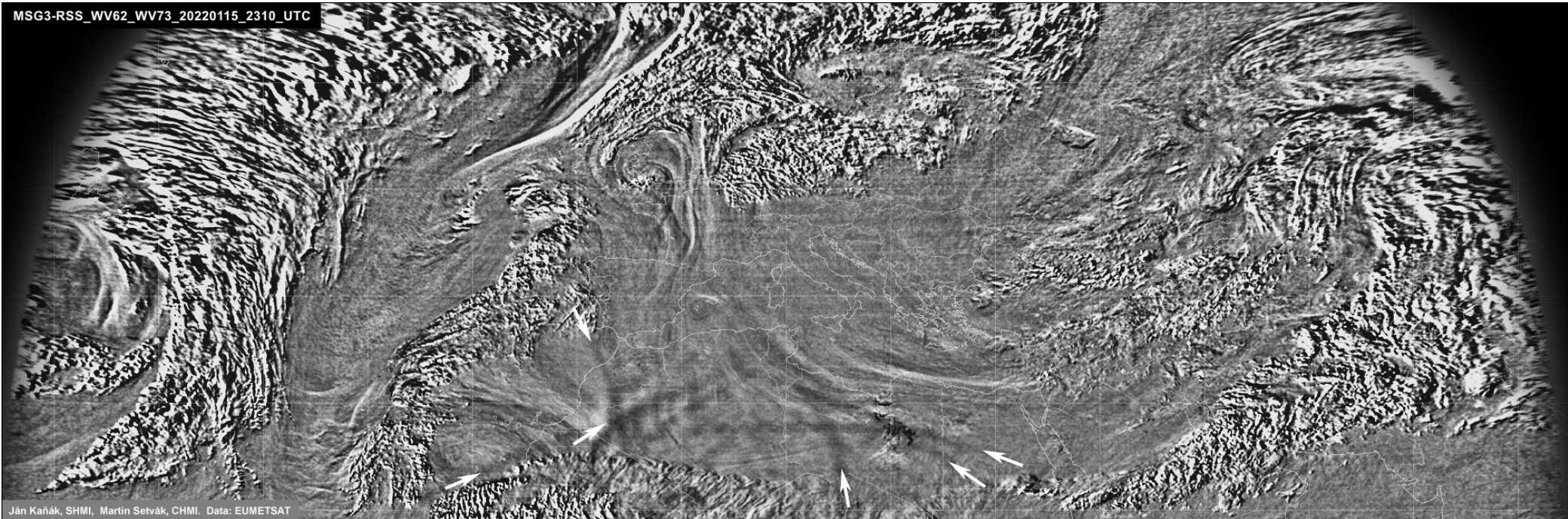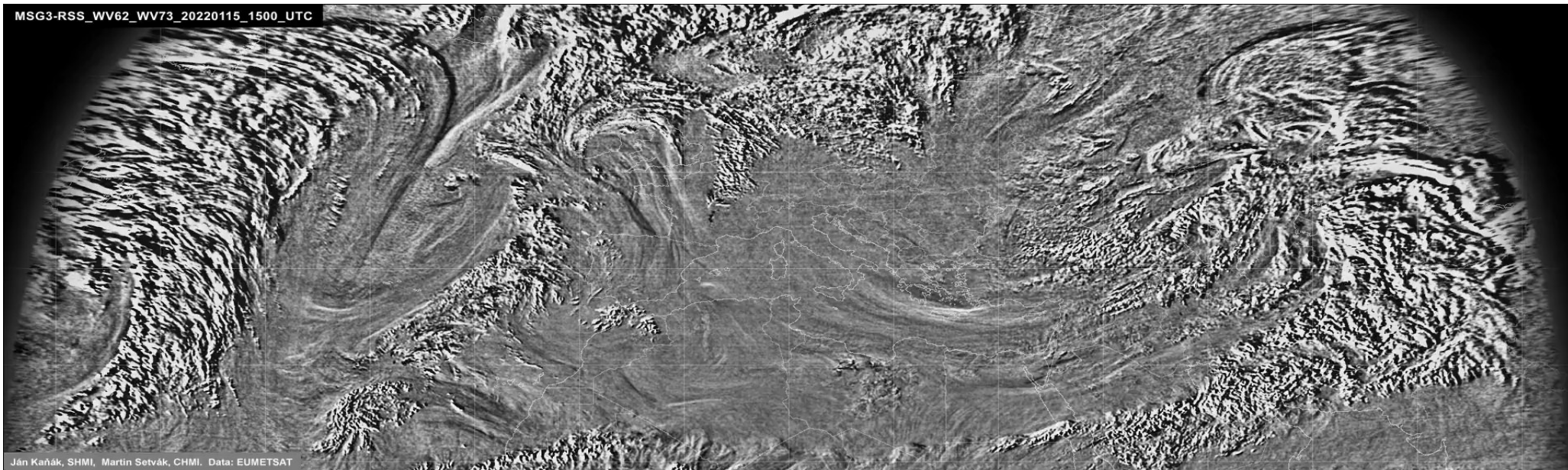
Summary

- Gravity and other waves can be better detected in WV bands with edge detection or time differences tecniques

- Can be a source of noise when detecting AMVs in WV images or MTG-IRS

- Level will be better determined with MTG-IRS