

Precursor observed by MF Band Dual
Frequency Simultaneous Measurement
prior to the 2011 off the Pacific coast of
Tohoku EQ



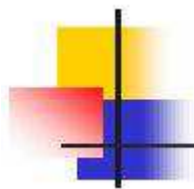
2012/10/1-3
EMSEV 2012

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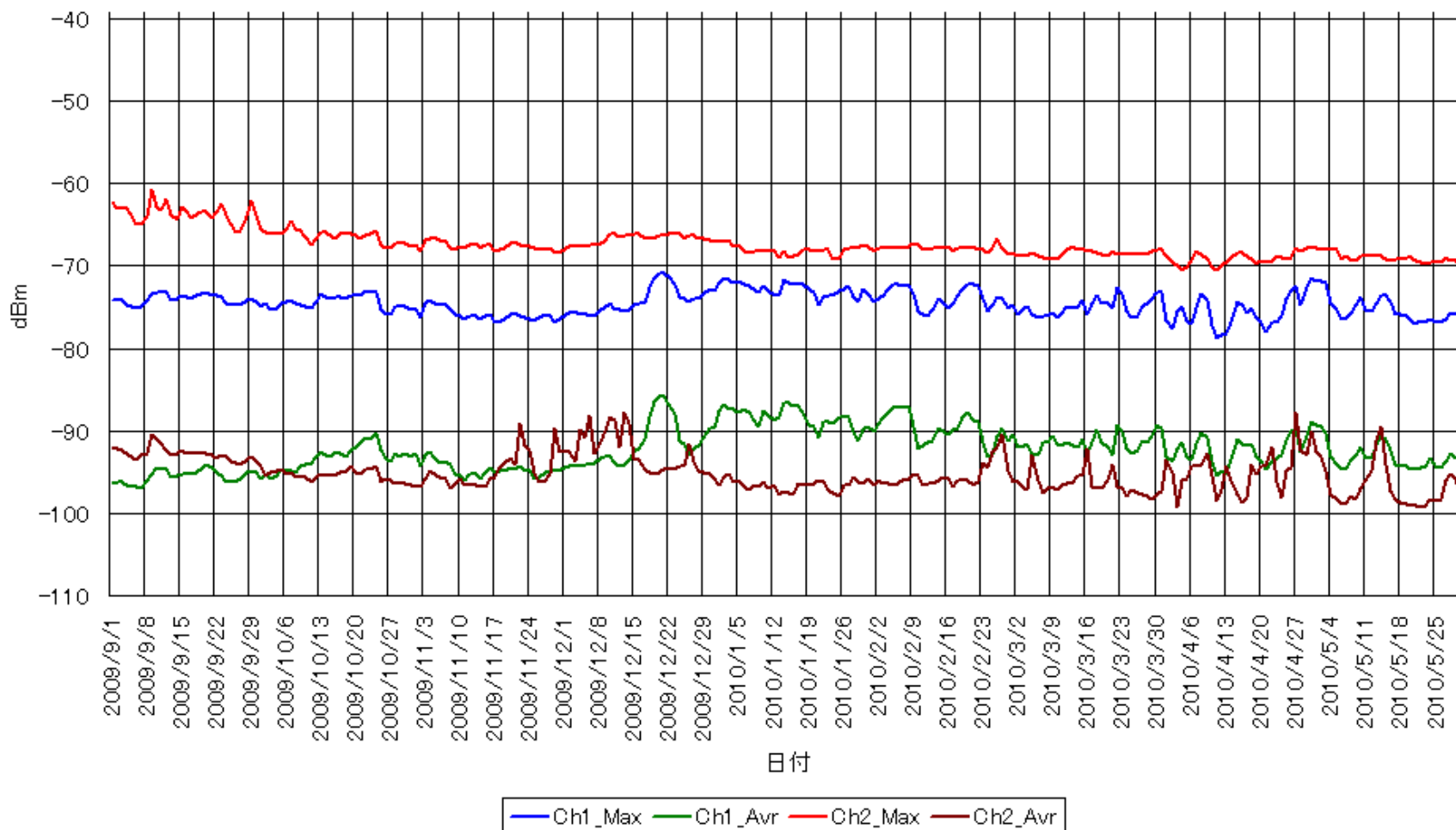
Osamu SUZUKI (Pico Systems Lab.)

Sachio HORIGUCHI (International Communication Planning Co., Ltd.)



Field intensity data at Kyoto obs. during 2009/9/1–2010/5/31 (the same season before 1 year)

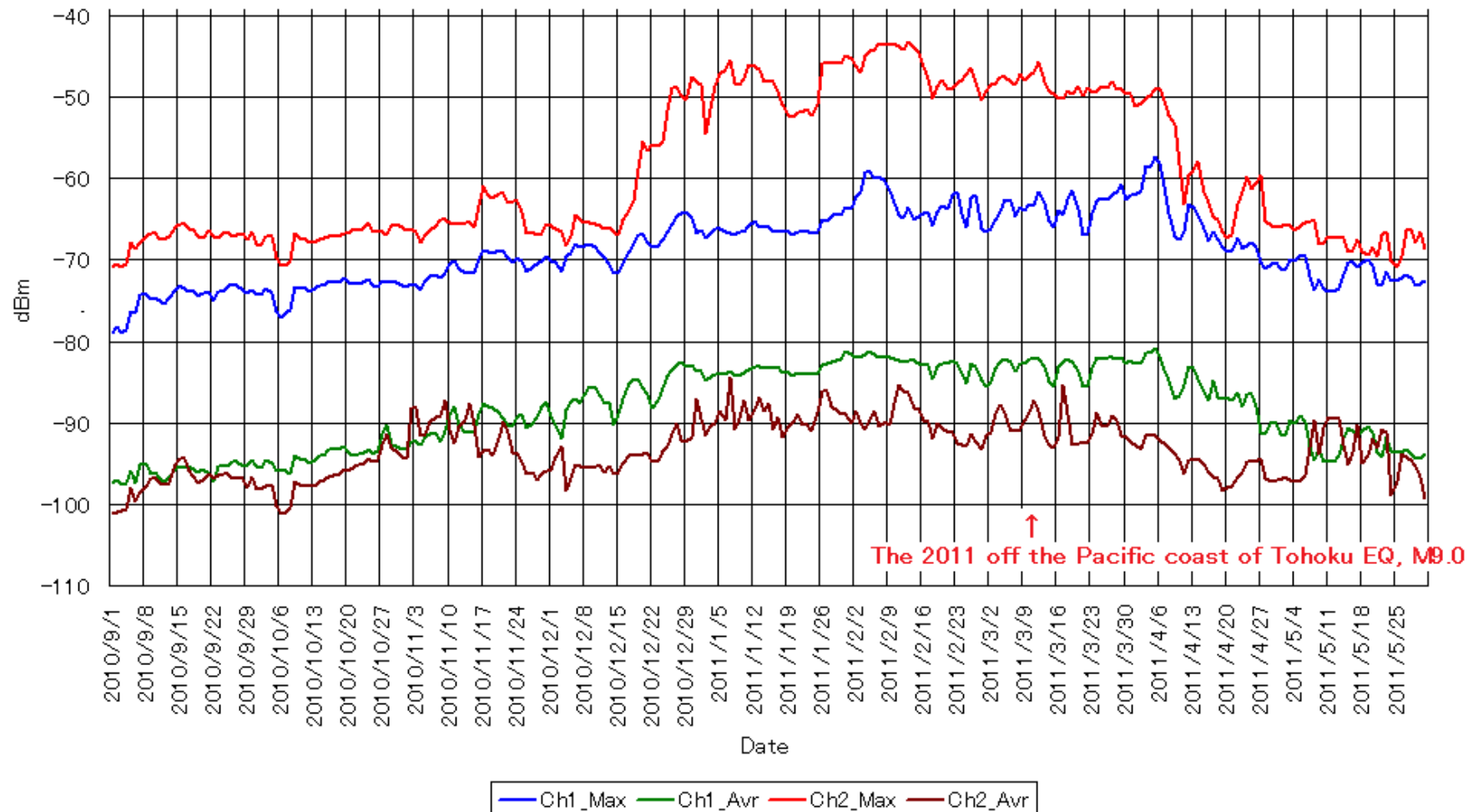
京都観測点 MF電波グラフデータ (2009/9/1 ~ 2010/5/31)





Field intensity data at Kyoto obs. during 2010/9/1–2011/5/31 (before and after the EQ)

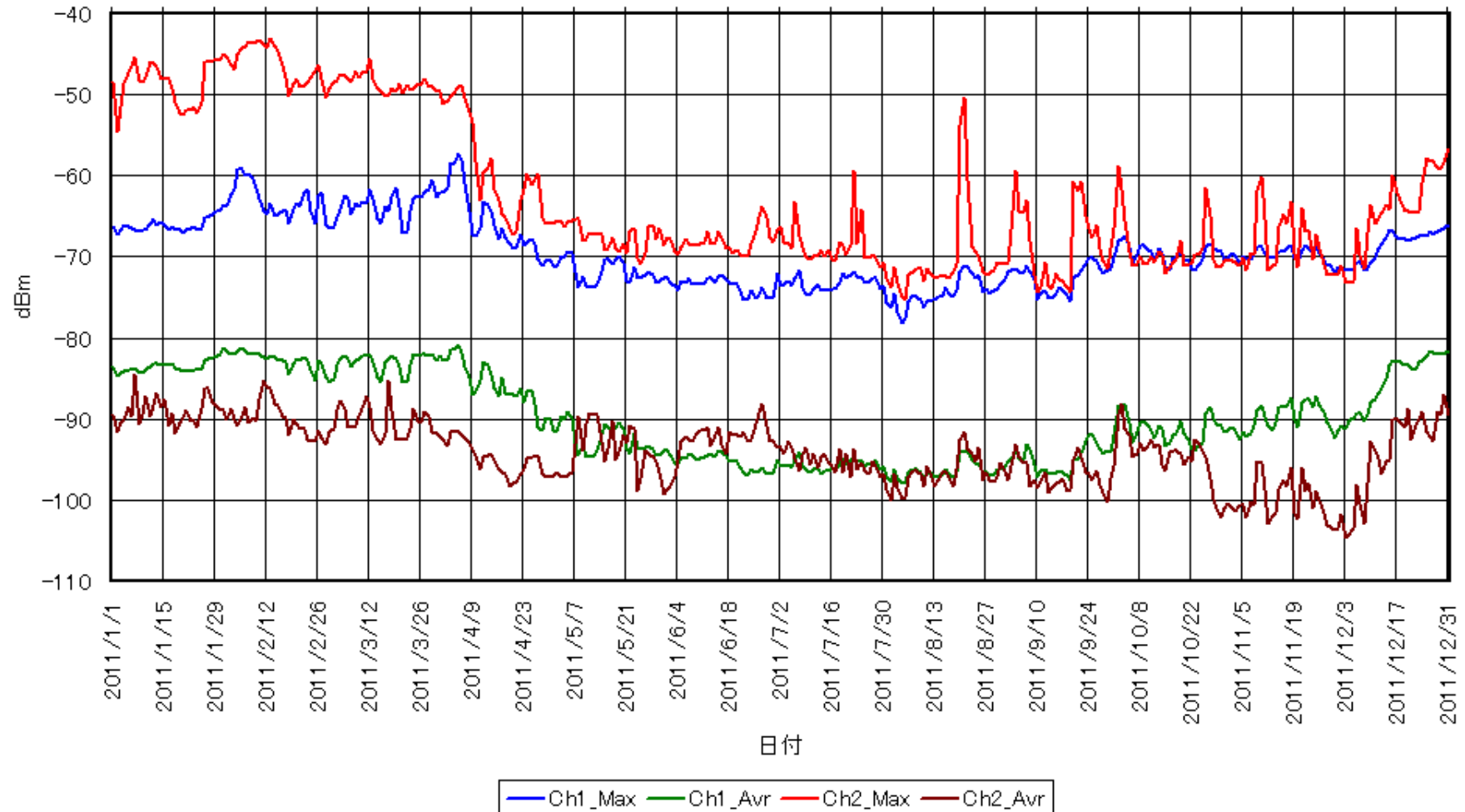
MF Band EM Wave Anomaly observed at Kyoto (2010/9/1 ~ 2011/5/31)

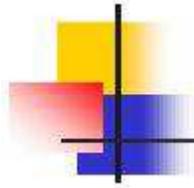




Field intensity data at Kyoto obs. during 2011/1/1–2011/12/31 (1 year period before and after the EQ)

京都観測点 MF電波グラフデータ (2011/1/1 ~ 2011/12/31)



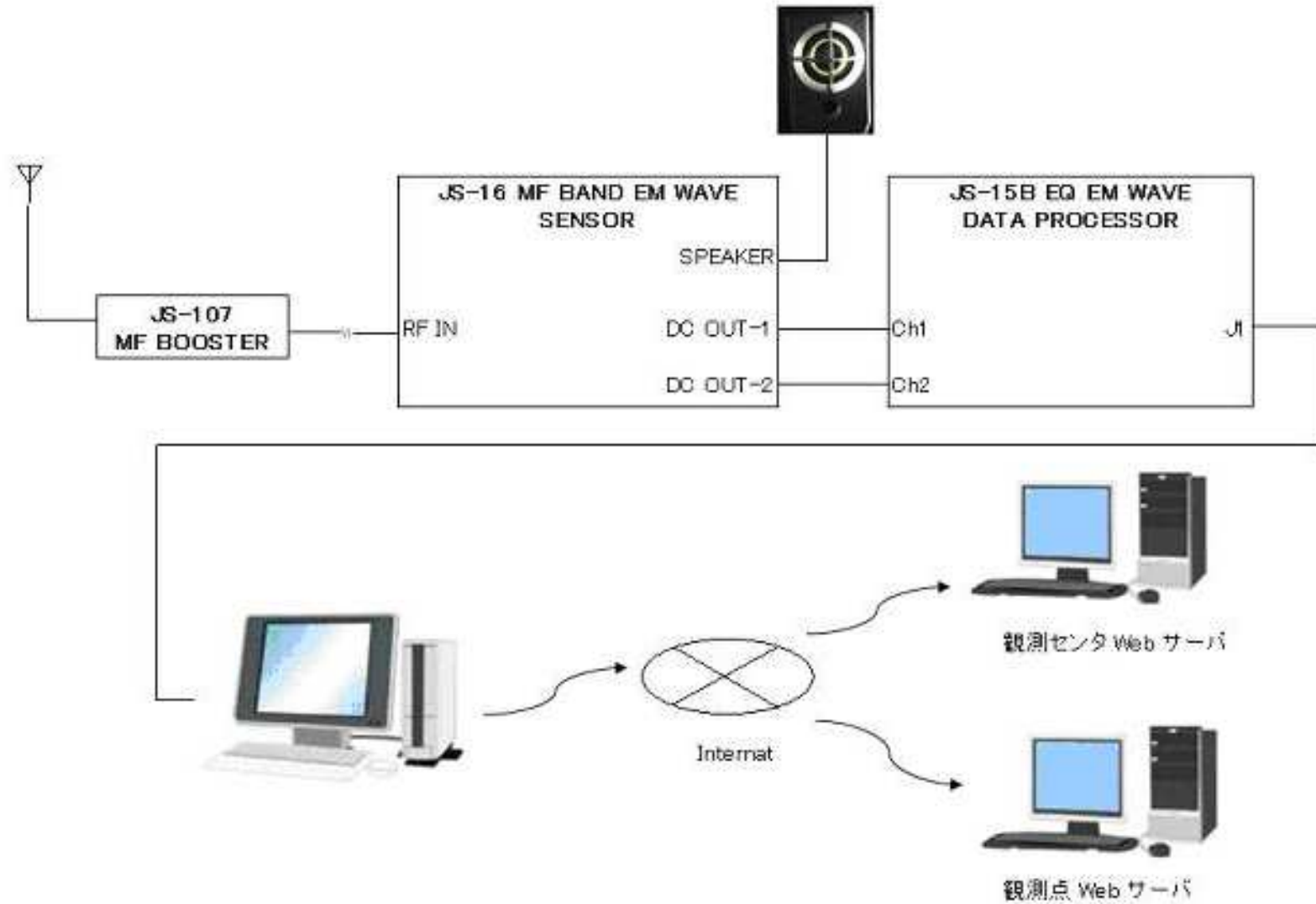


Observation situation

- Kyoto obs. is located approx. 700km far from the epi-center and at suburbs of Kyoto and less interference of electric and magnetic waves.
- 20mSec Sampling, Plot Max, Min, Average value in 20 Sec.
- Data has been continued at calm condition since beginning of observation for more than 1 year.
- Field intensity began raising since end of December 2010, reached at peak at middle of February 2011, continued by beginning of April then settled in the middle of April.
- Pacific coast of Tohoku EQ with M9.0 D=24km occurred on 2011/03/11.
- Field intensity raise up by 10dB from normal condition.
- This anomaly may be precursor of the EQ.



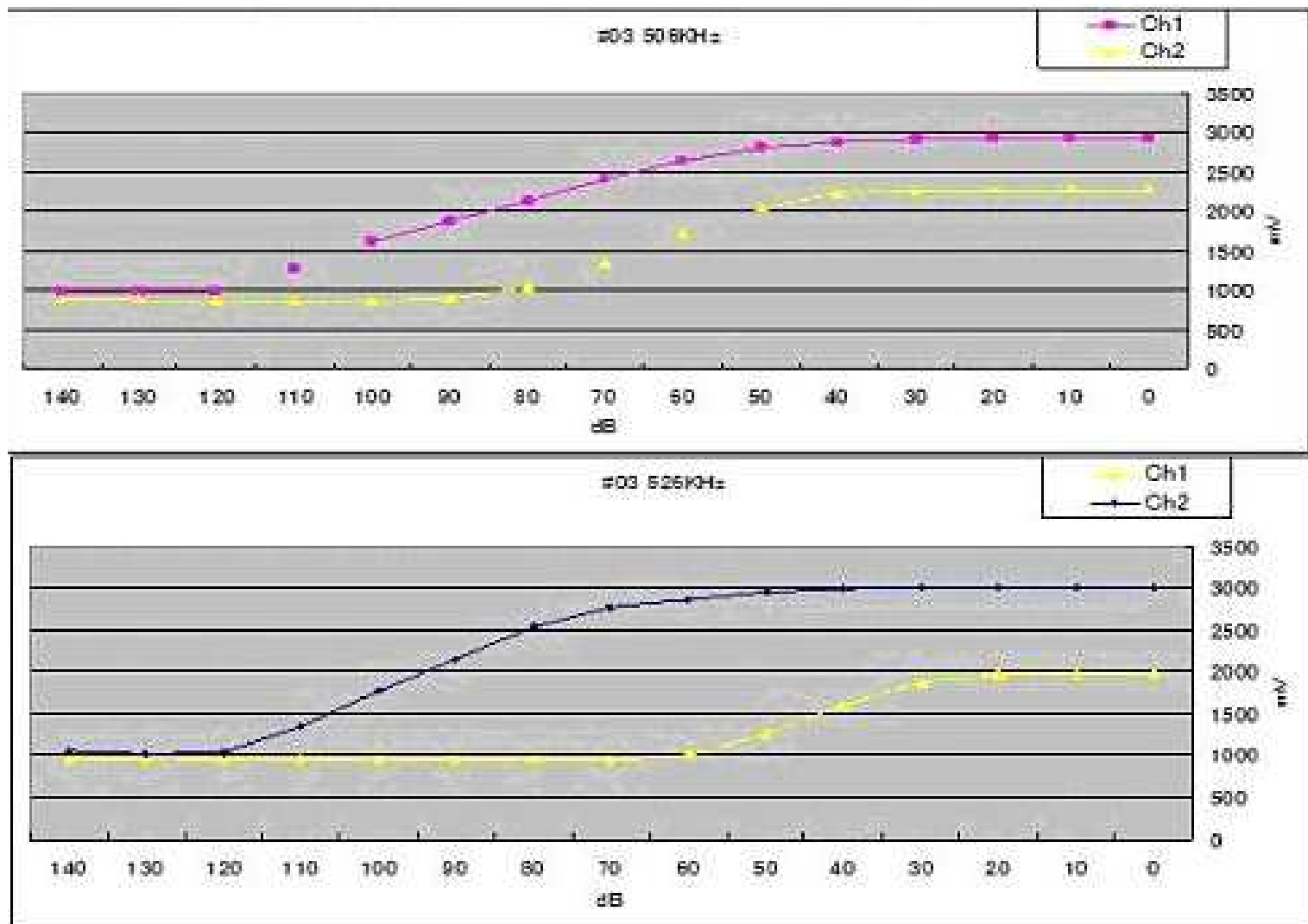
Observation System

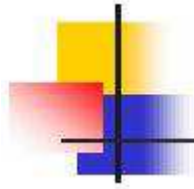




Input/Output Characteristic, Sensitivity

-120dBm(BW: ± 1 kHz/3dB)





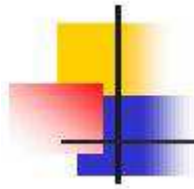
Equipment Development Status

Already developed

- LF Band (125kHz、145kHz)
- MF Band (505kHz、525kHz)

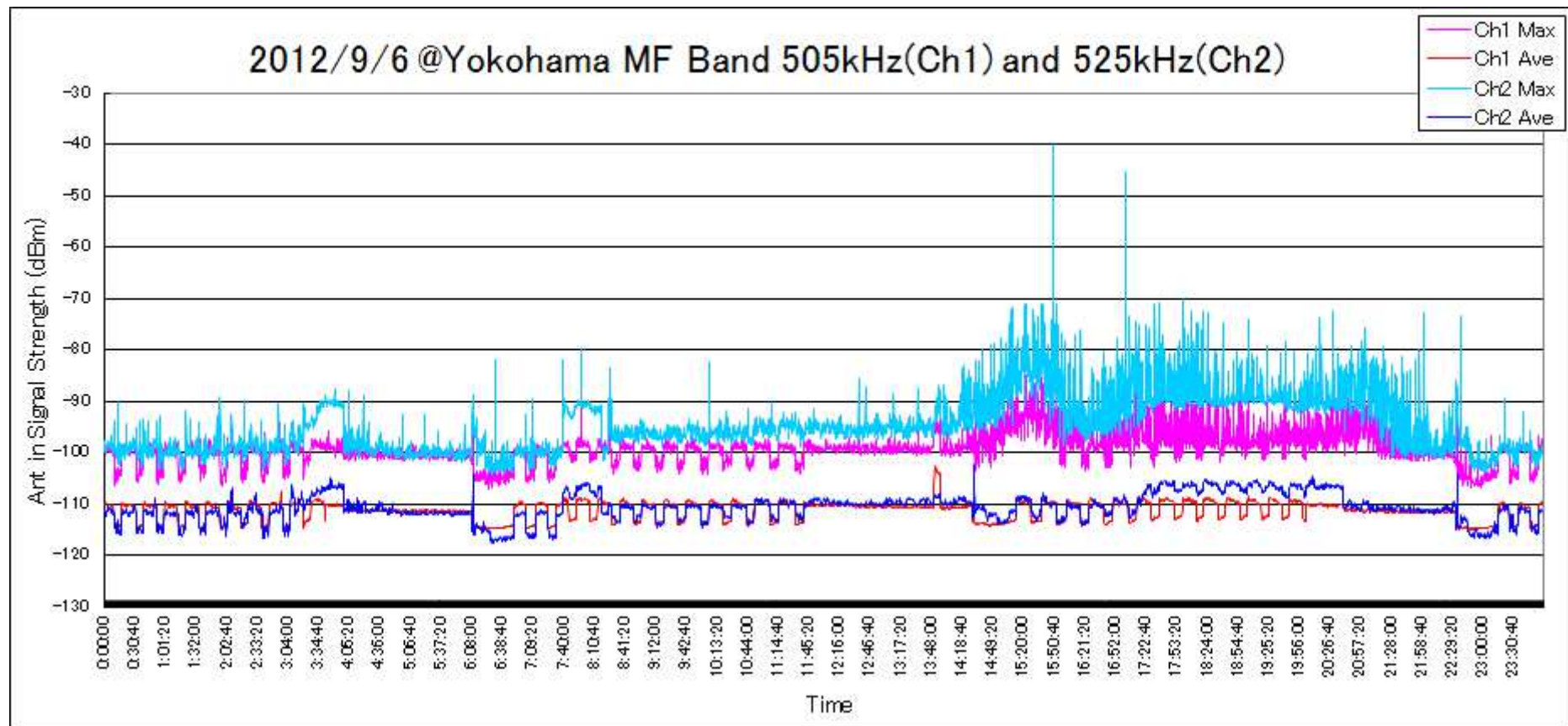
Plan to develop

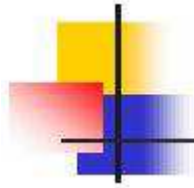
- VHF Band (Any adjacent 2 Freq. in 76MHz~100MHz)
- UHF Band (Any adjacent 2 Freq. in 400MHz~500MHz)



Another Example of Anomaly

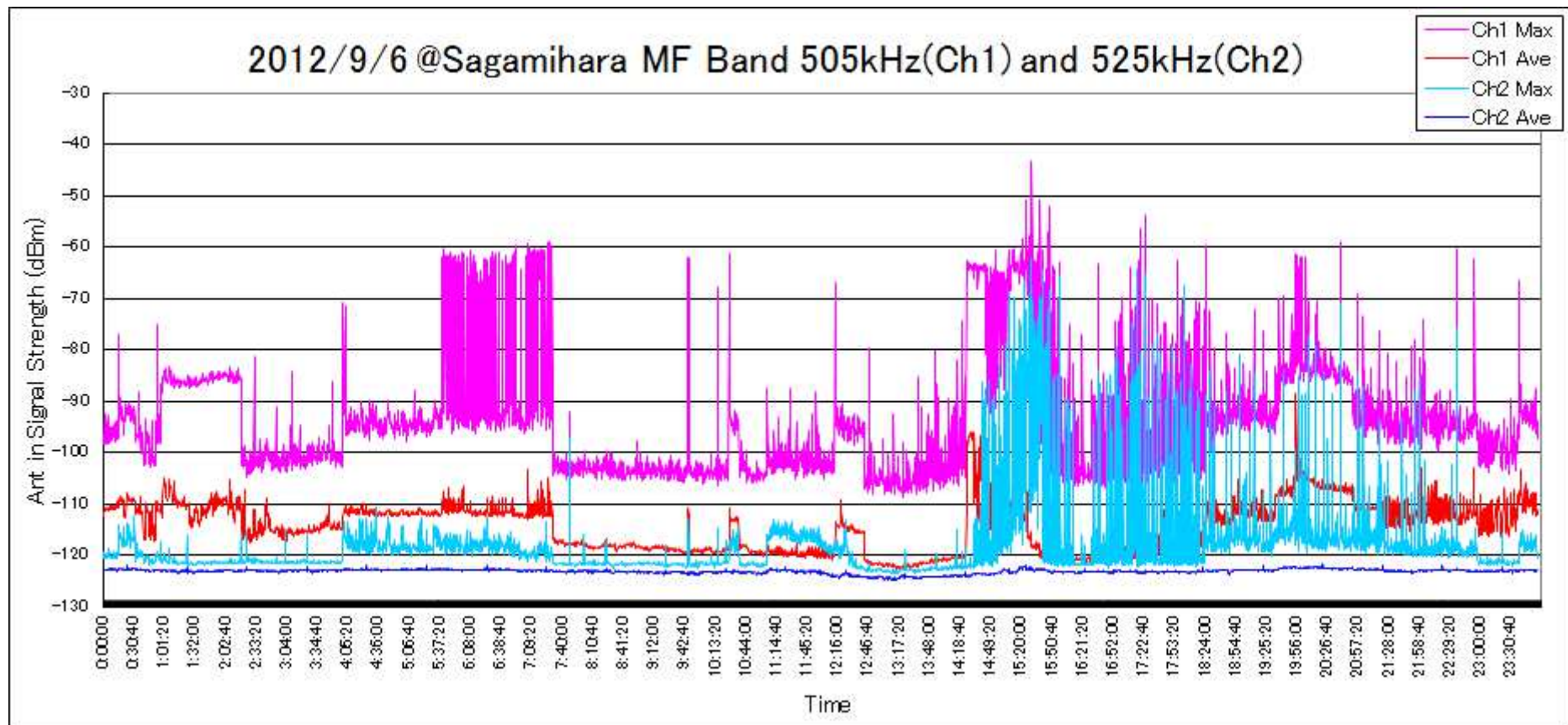
2012/9/6 at Yokohama MF Band

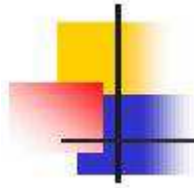




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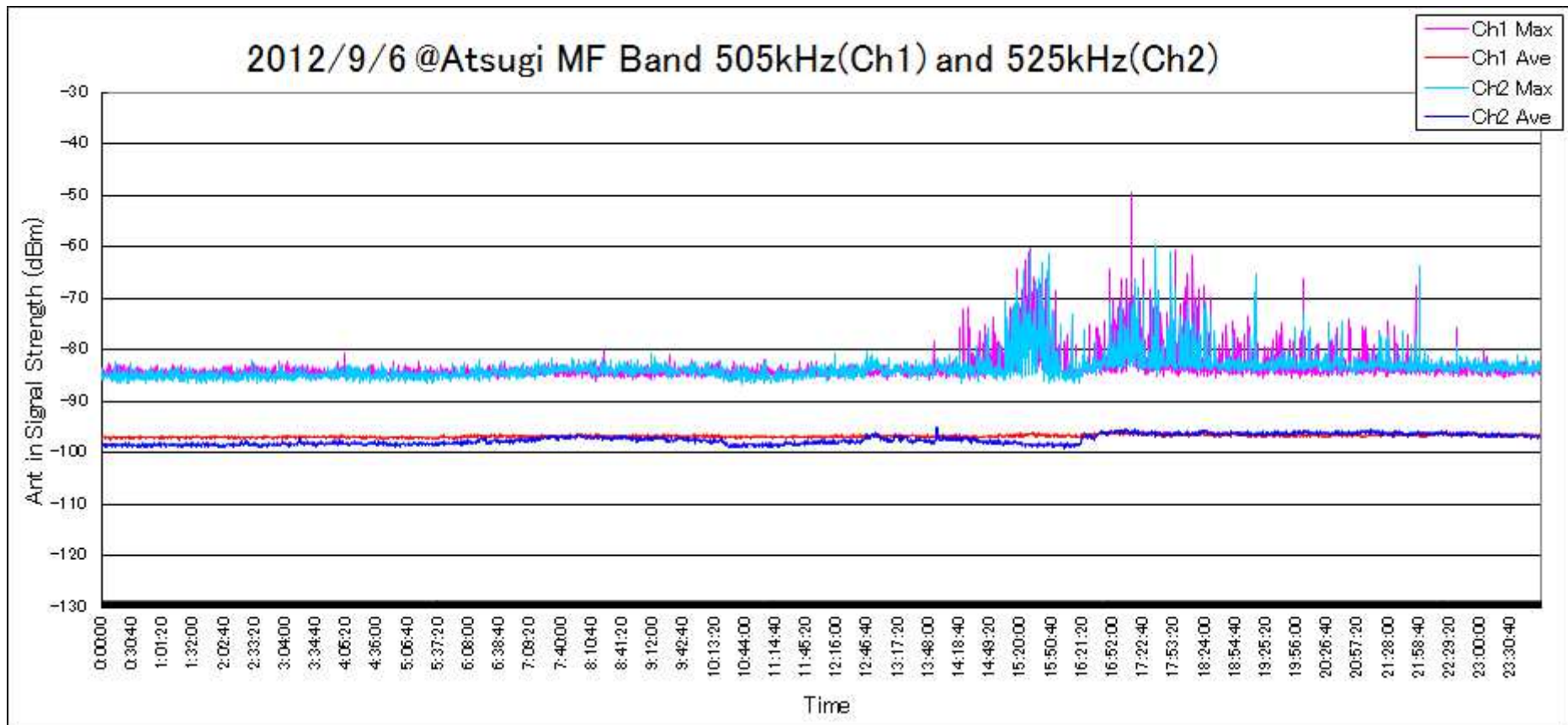
2012/9/6 at Sagamihara MF Band

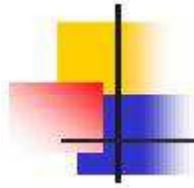




Another Example of Anomaly

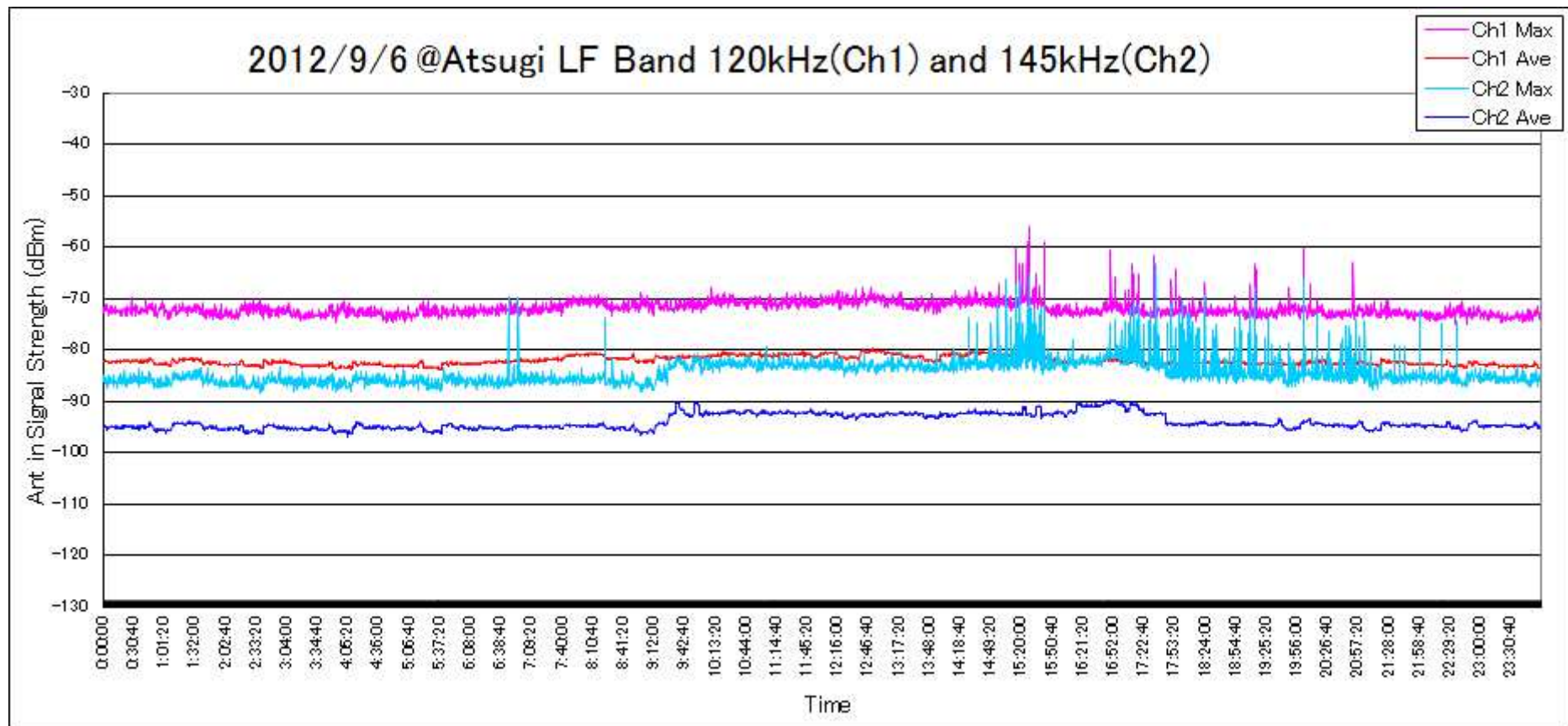
2012/9/6 at Atsugi MF Band

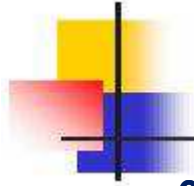




Another Example of Anomaly

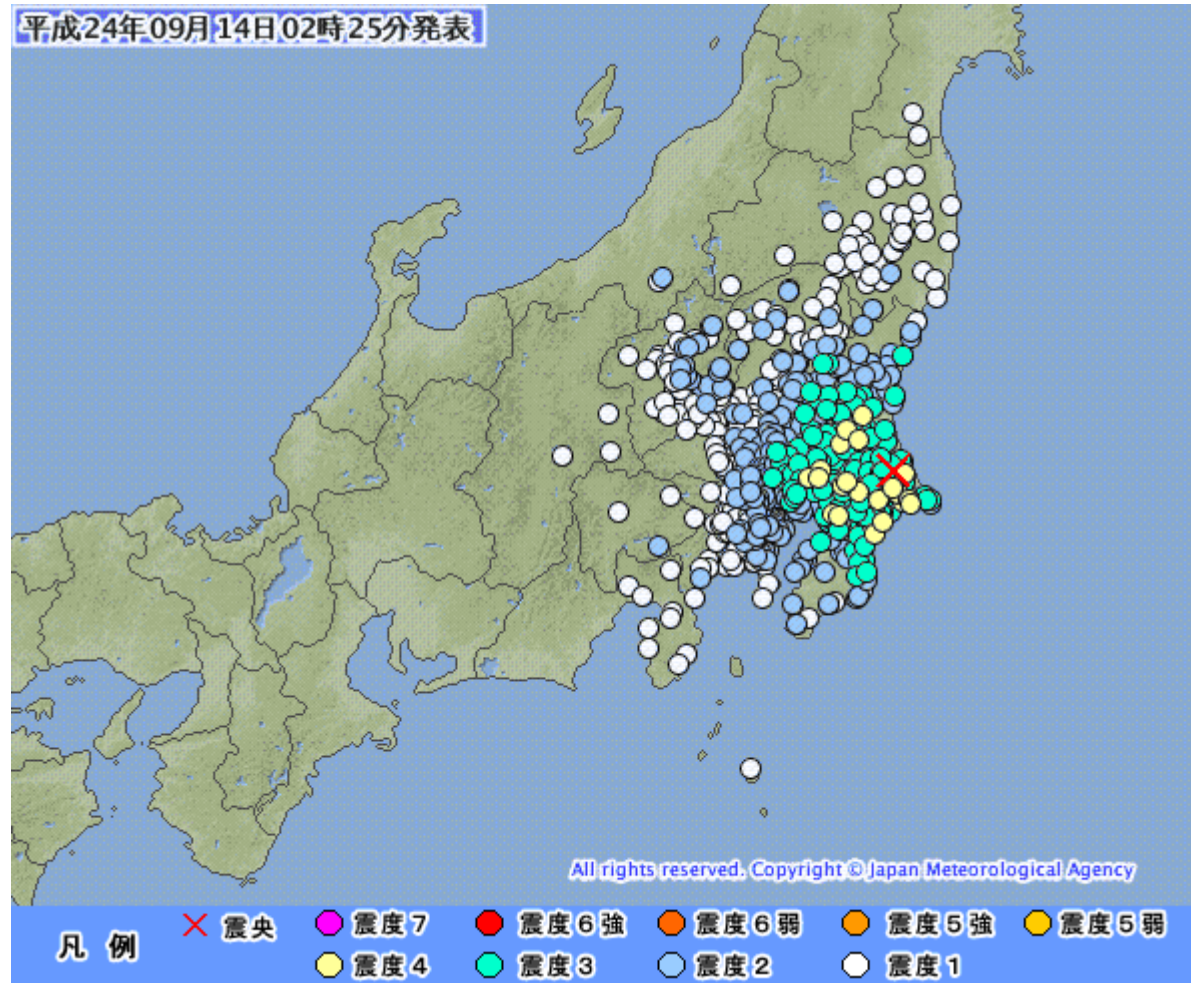
2012/9/6 at Atsugi LF Band



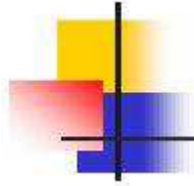


Associated EQ

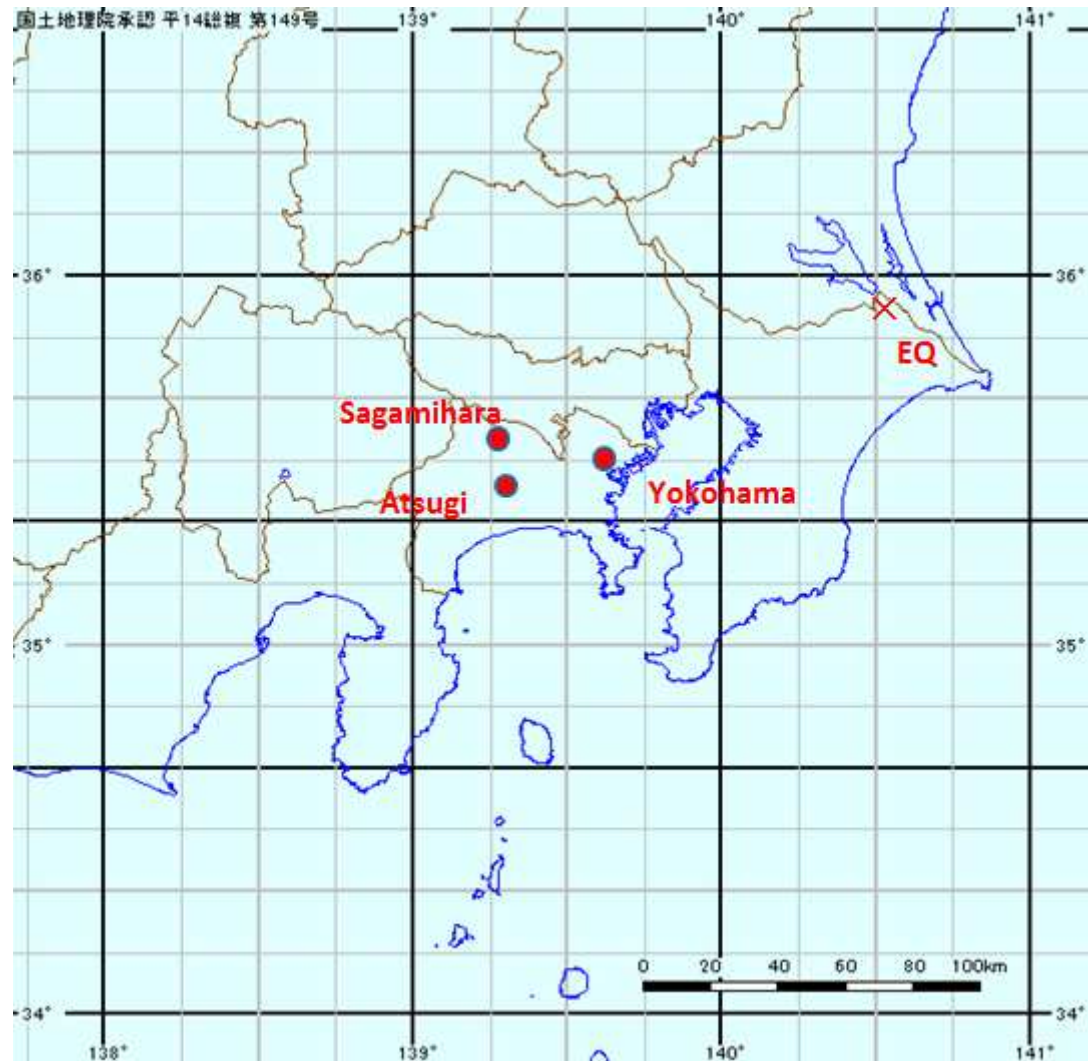
2012/9/14 2:22 35.86/140.541 36.6km M=5.1 SOUTHERN IBARAKI PREF



Source: JMA



EQ and Location of Observation posts





Contact

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