Daily summary monitor (RMSMon and FileFinder)

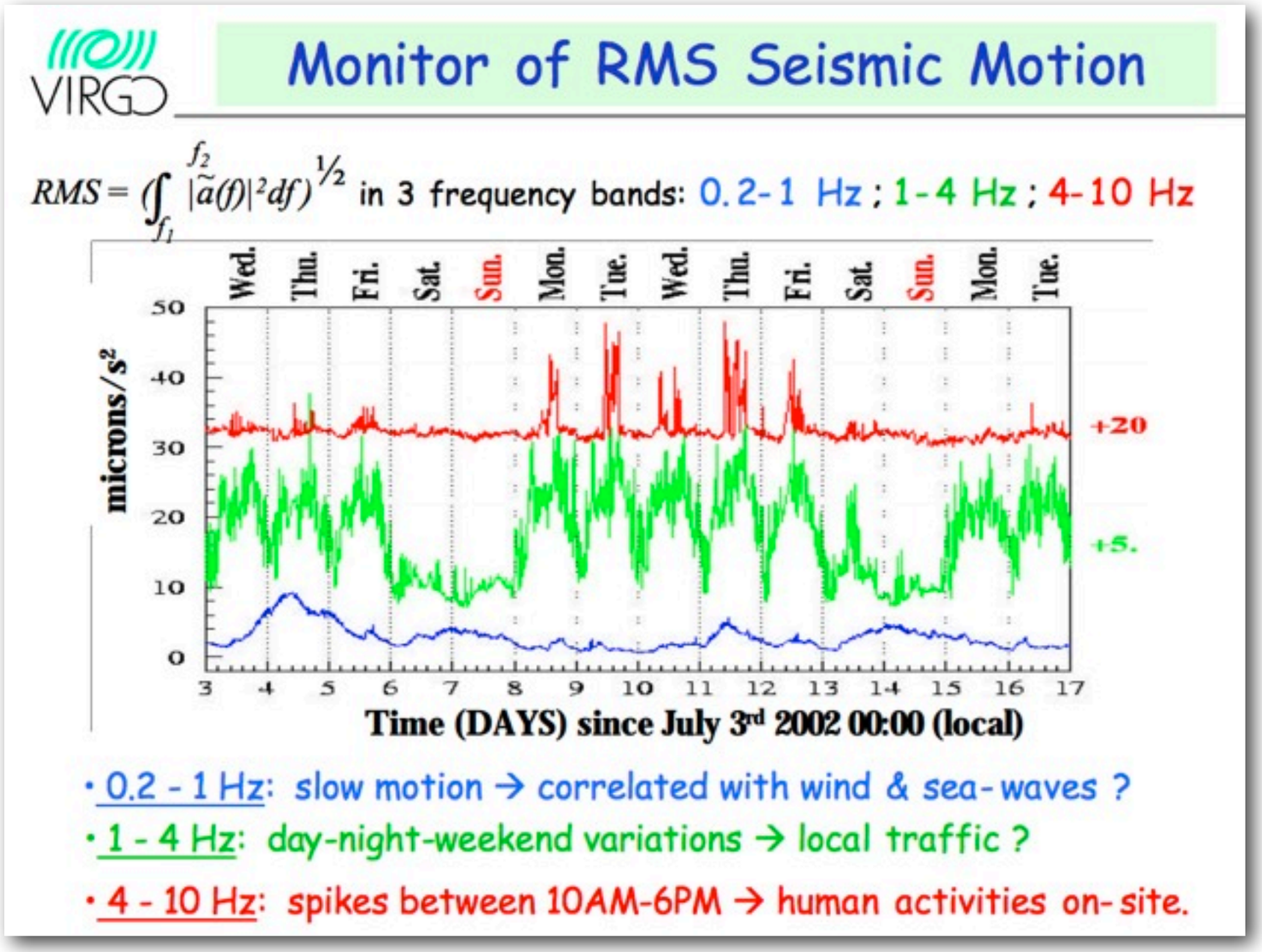
2016/1/26 Tuesday @DetChar meeting, Yuzurihara

o Today's topic

- What is RMSMon
- Definition of RMSMon
- Example of RMSMon
- About FileFinder

What is RMSMon?

RMSMon : RMS monitor tool
RMSMonitor can find the time affected by non-stationary transient noise.



[Classical and Quantum Gravity, Volume 21, Number 5]
http://labcit.ligo.caltech.edu/LIGO_web/amaldi5/pdf/fiori.pdf

Definition of RMSMon

[Classical and Quantum Gravity, Volume 21, Number 5]

$$RMS = \left(\int_{f1}^{f2} |\tilde{s}(f)|^2 df \right)$$

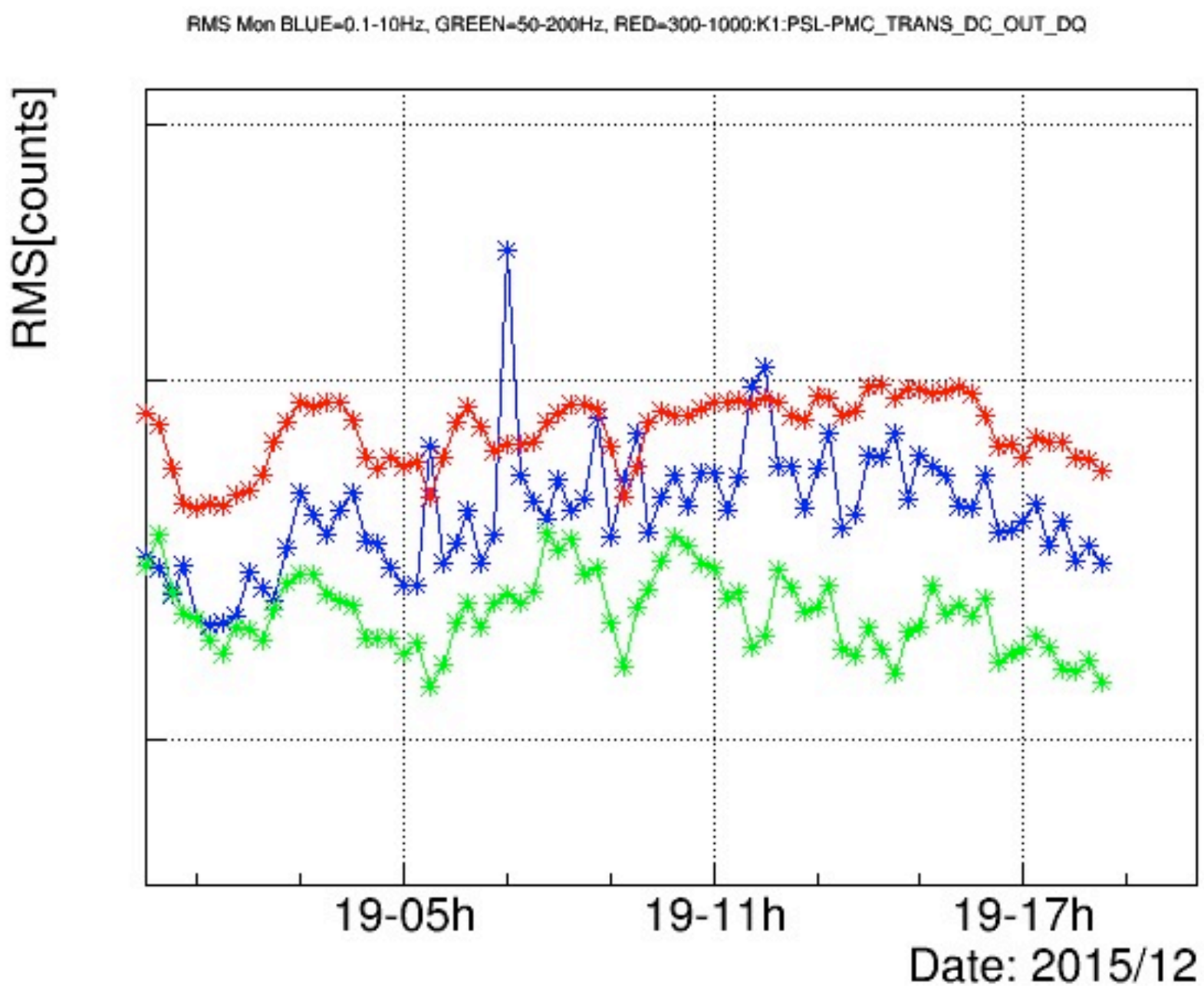
1. calculate the spectrum s(f)
 from the time series s(t)

2. sum up the squared spectrum
between the frequency band

Now frequency bands are fixed as
0.1~10Hz, 50~200Hz and 300~1000Hz.
But in the web-based tool, you can more precisely analyze
changing arbitrary frequency bands.
http://seikai.hep.osaka-cu.ac.jp/~chino/cgi-bin/webToolFrame.cgi

Example of the calculated RMSMon

http://seikai.hep.osaka-cu.ac.jp/~chino/cgi-bin/dailyFrame.cgi?year=2015&month=12&day=19&subSys=IOO

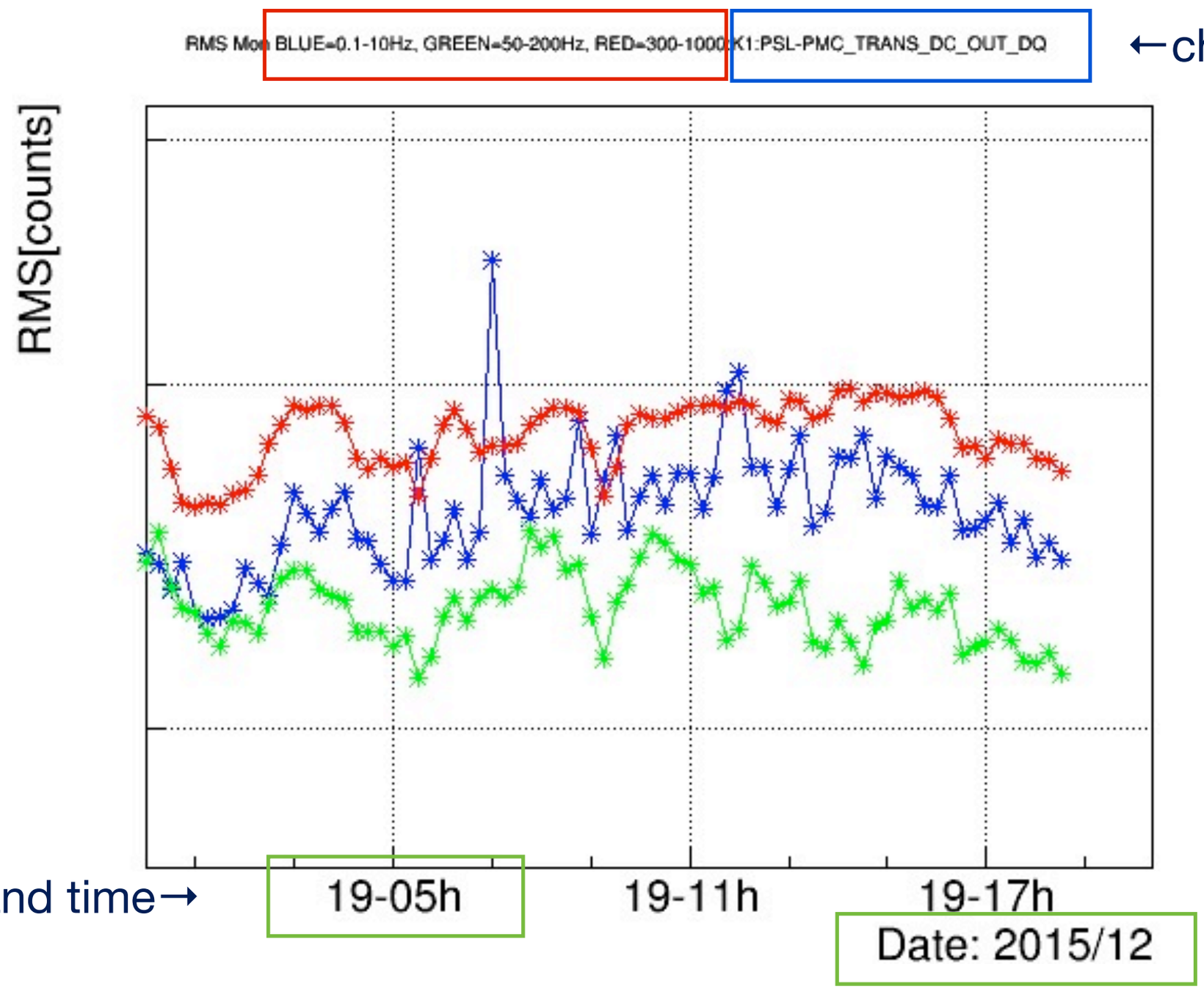


Example of the calculated RMSMon

http://seikai.hep.osaka-cu.ac.jp/~chino/cgi-bin/dailyFrame.cgi?year=2015&month=12&day=19&subSys=IOO

frequency bands are chosen as 0.1~10Hz, 50~200Hz and 300~1000Hz.

↓



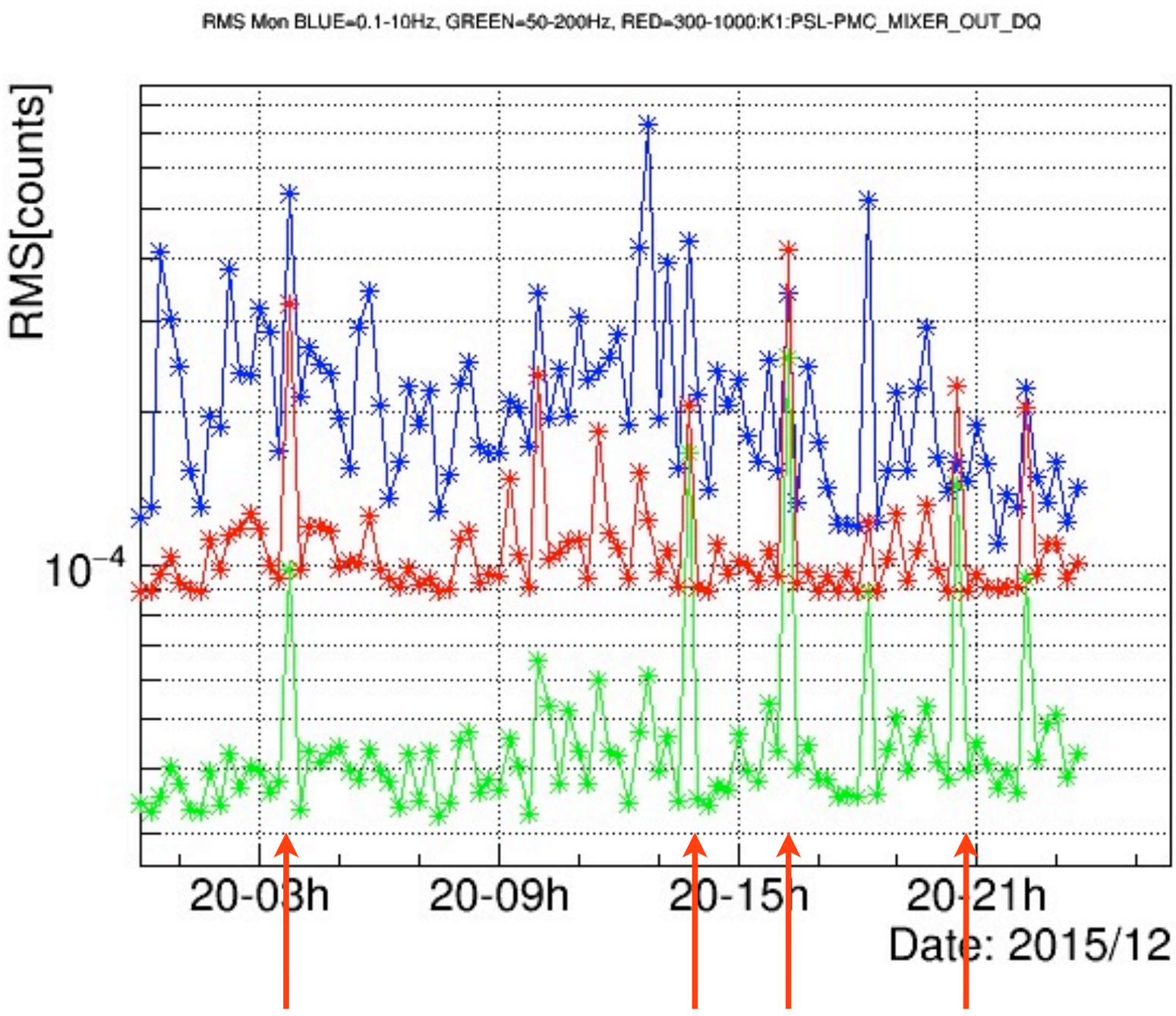
←channel name

day and time→

←year and month

Different example of the calculated RMSMon

http://seikai.hep.osaka-cu.ac.jp/~chino/2015/12/20/K1:PSL-PMC_MIXER_OUT_DQ-2015-12-20_RMSMon.png



We see the signal affected by the transient glitch by eye.

Different example of the calculated RMSMon

FileFinder monitor is developed.
This monitor can find whether the frame data is registered in data base or not.
The resolution of figure is not low, so all lost data is not covered.