

# **Updates on KAGRA detector characterization**

**KAGRA detchar team**

- **CLIO test operation in the middle of Oct**
  - **End-to-end test of prototype detector system during the operation.**
  - **Time domain calibration**
  - **Hardware injection of correlated glitches in GW and acceleration monitor.**
- **Developing multi-variate statistical analysis of multiple channels.**
  - **Supervised (Korea, )**
  - **Unsupervised (New project)**
- **Software environment**
  - **Introducing Git for version management.**

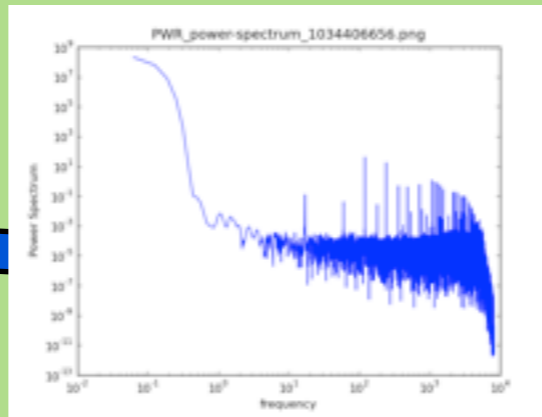
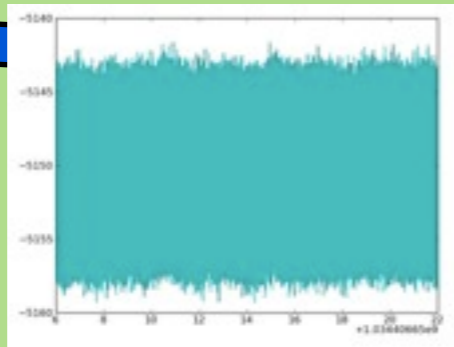
# Detector Characterization system

**Inst. Mon**



photo detector

**16s**

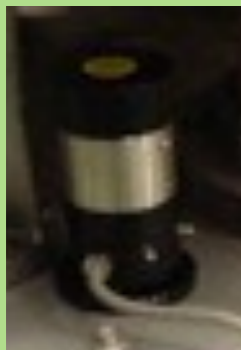


**RT WS**



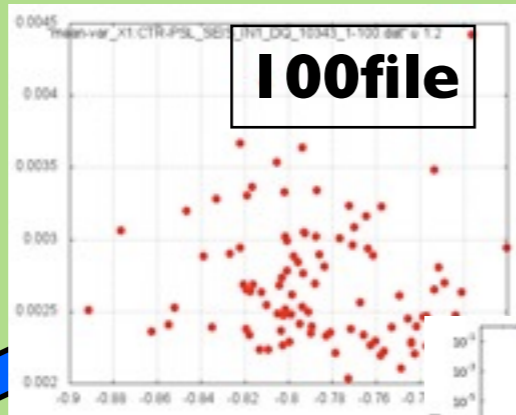
**RealTime update @16s**

**Env. Mon**

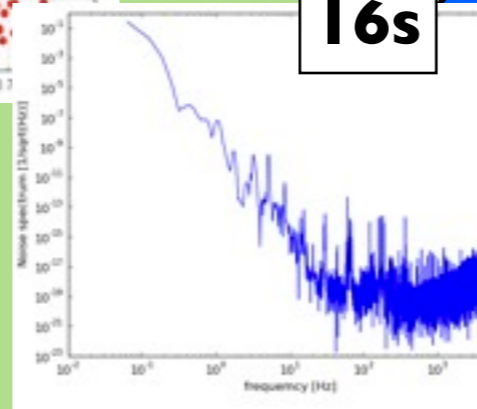


acce.

**100file**



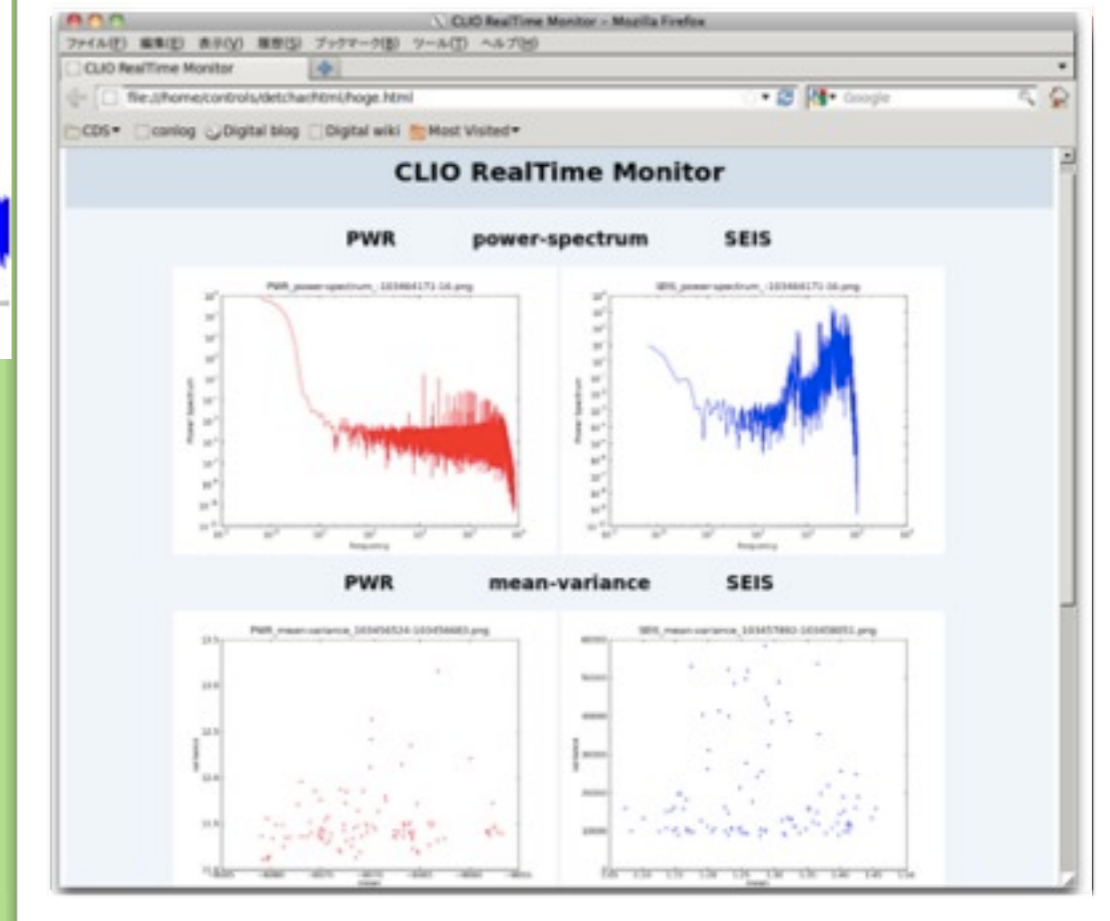
**16s**



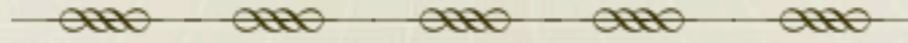
**Sens. Mon**



**CLIO**



**K.Tanaka**



## Calibration

Convert to physical unit

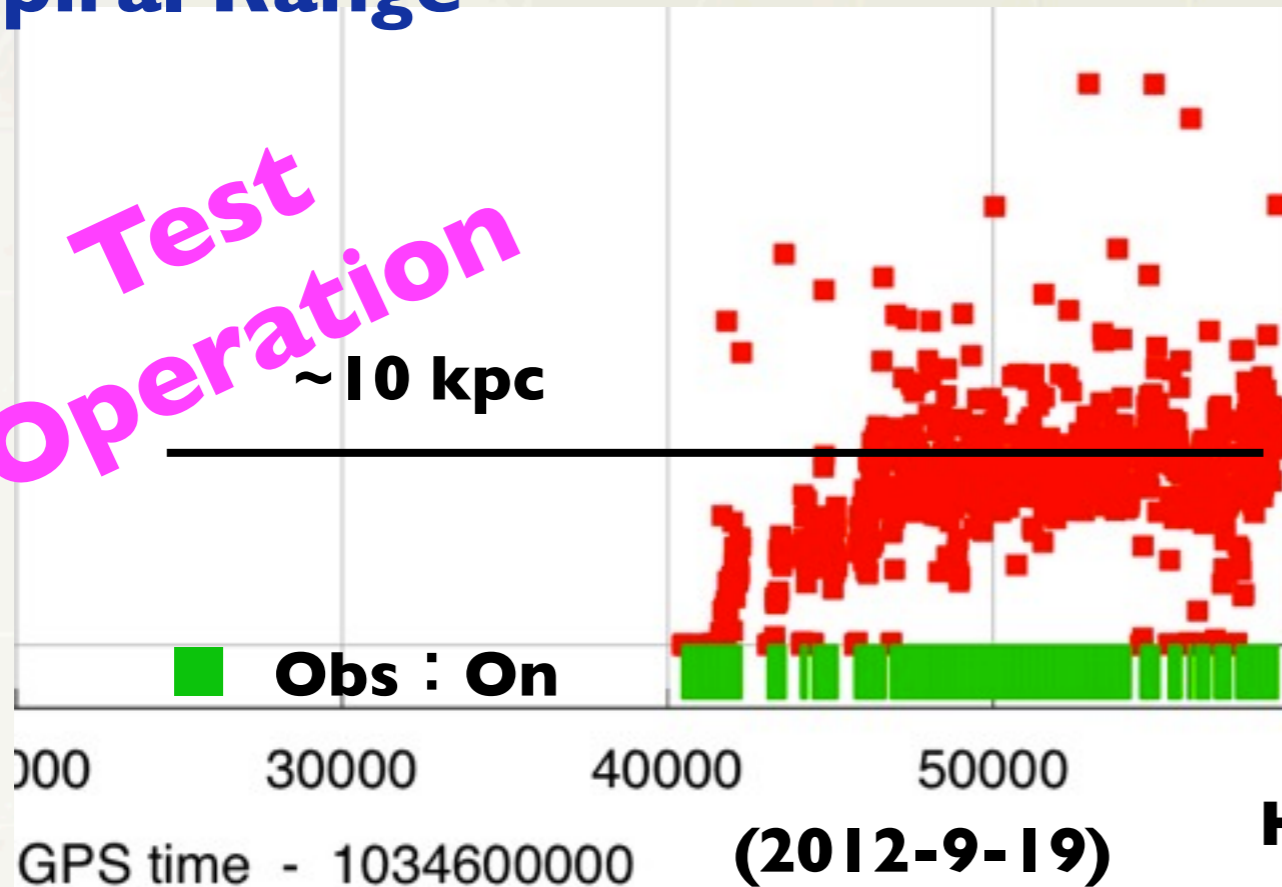
Processing on time-series data

Generation of filters of TF

→ various kinds of analysis

## Inspirational Range

**Test Operation**  
~10 kpc

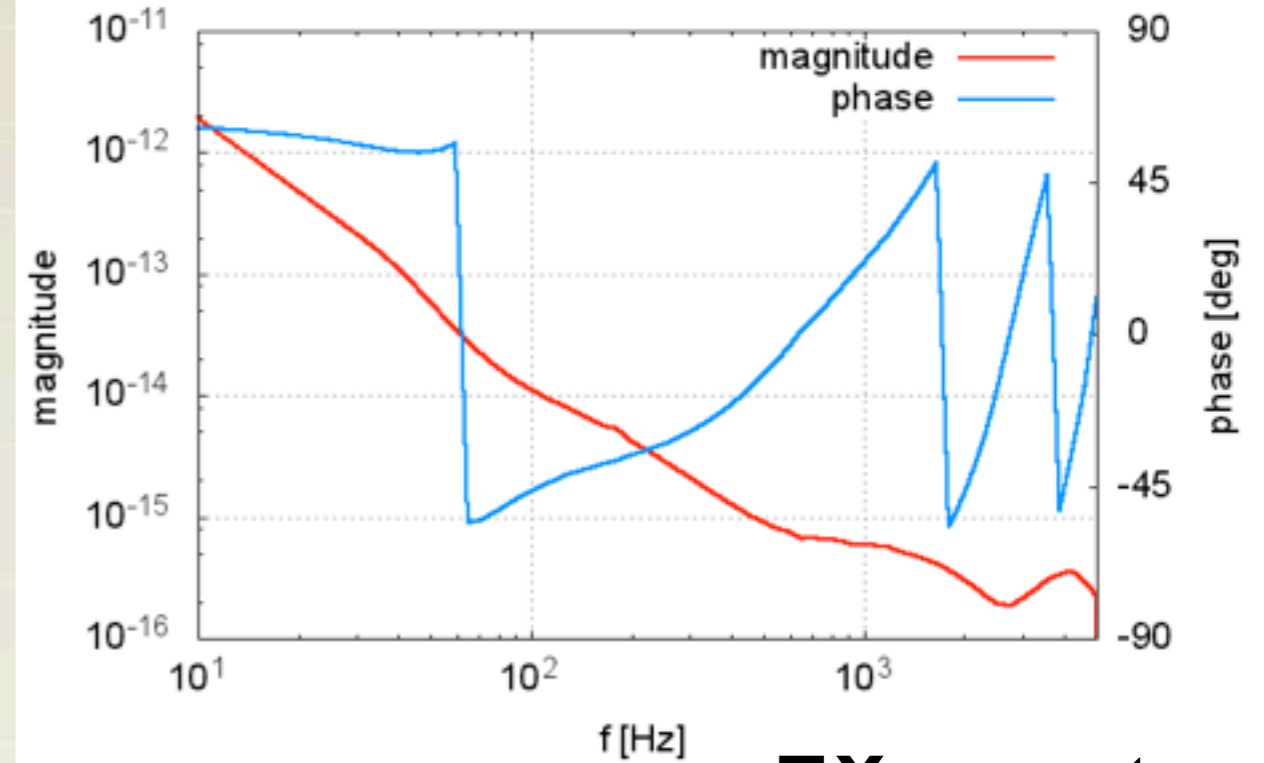


- Real time display of the inspiral range
- Total locked time ~13hrs

**H.Yuzurihara**

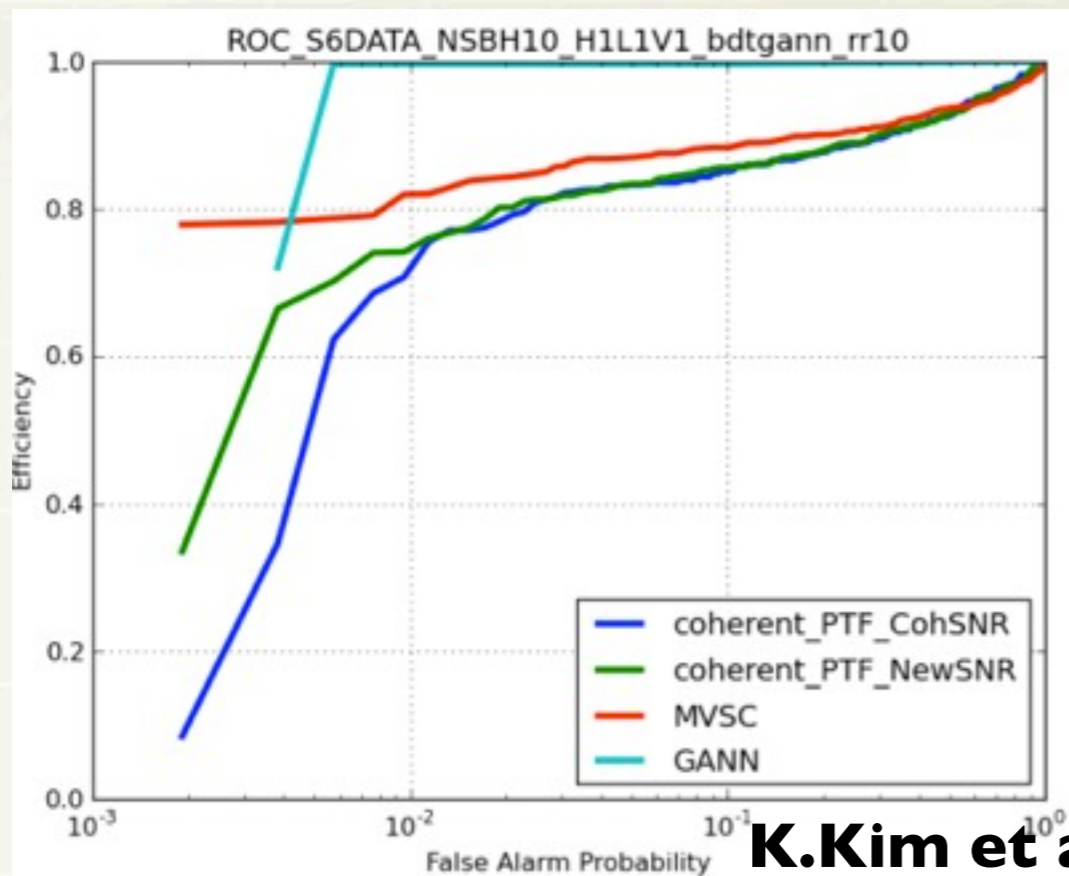
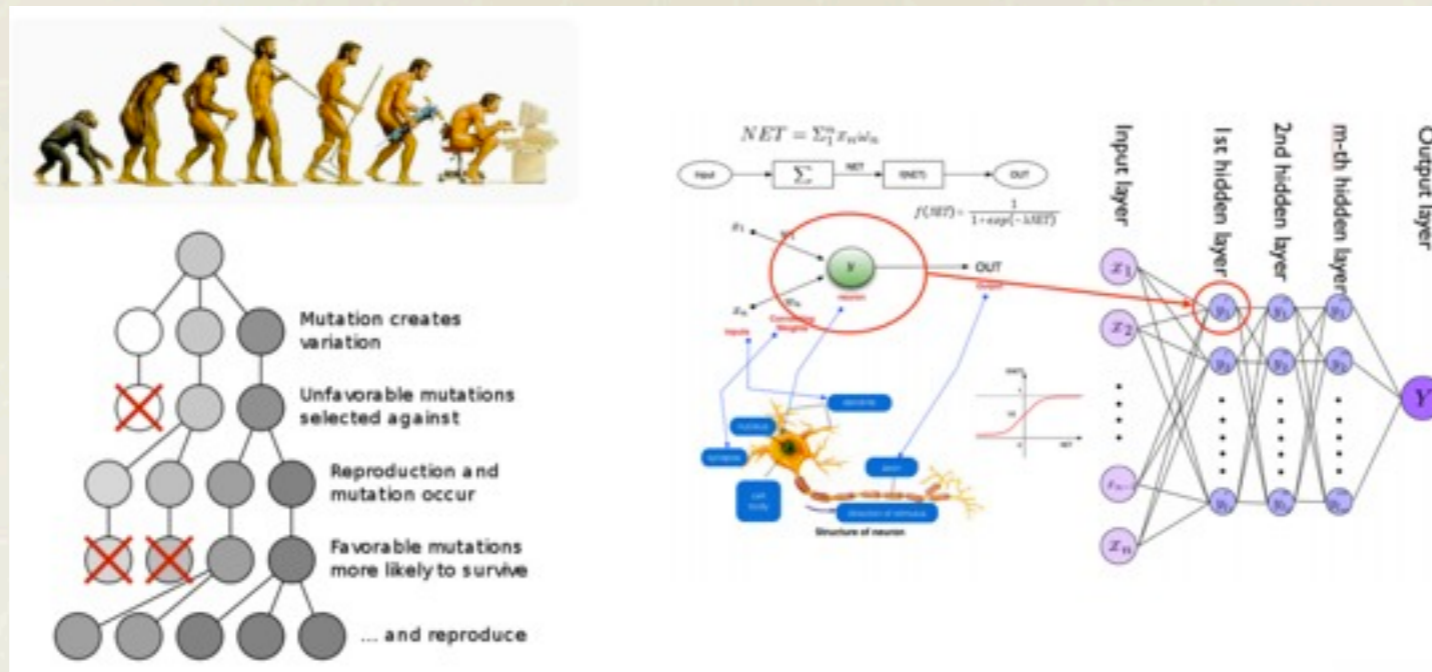
## Estimation of TF

estimation of transfer function

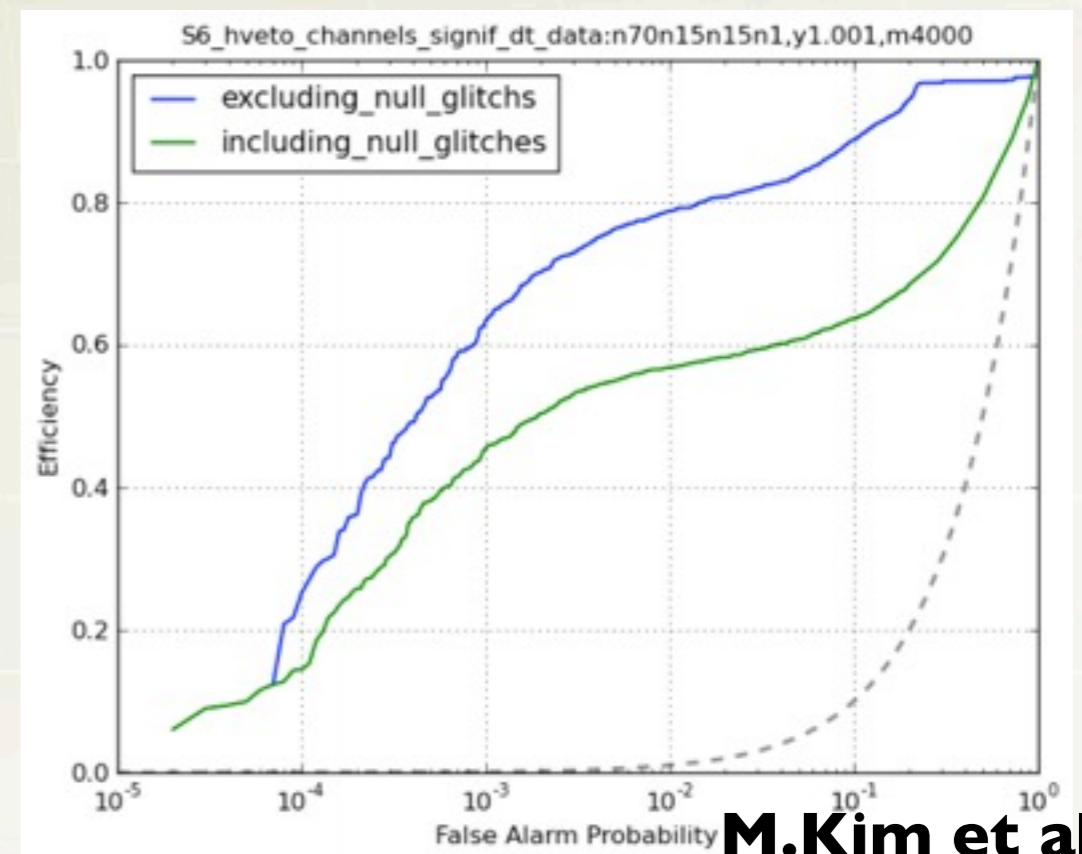


**T.Yamamoto**

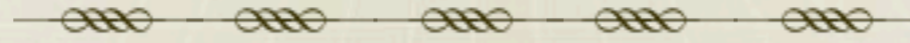
**Artificial Neural Network based.  
Genetic Algorithm included.**



**K.Kim et al.**



**M.Kim et al.**



- **Affinity propagation based**
- **Too many classes for now**

