

Update on monitoring the HBA tiles/elements

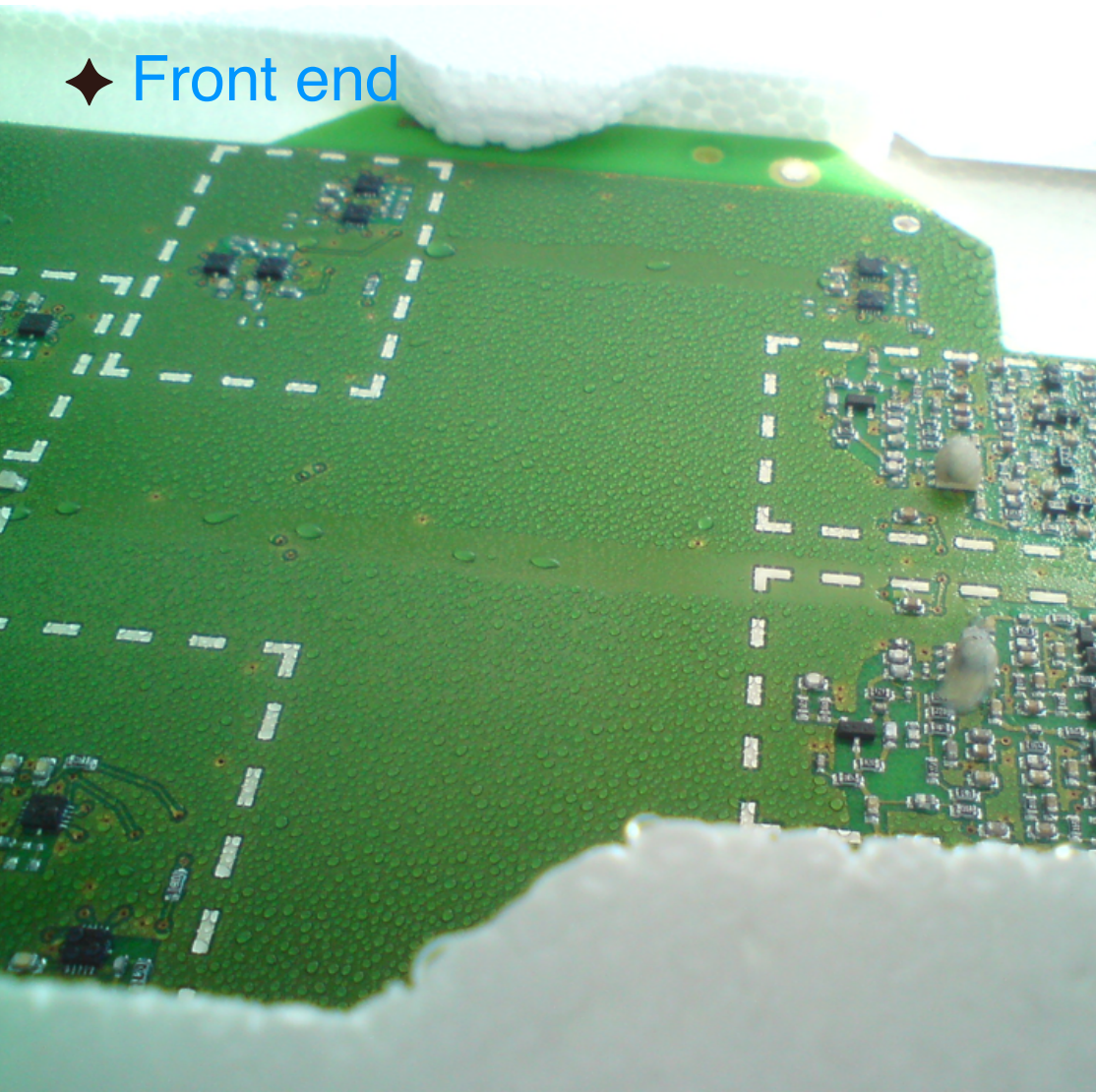
ASTRON

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(Henri Meulman, Menno Norden, Harm Munk,
Marco Drost, Pieter Donker)



Update on monitoring the HBA tiles & elements -- degradation of hardware --

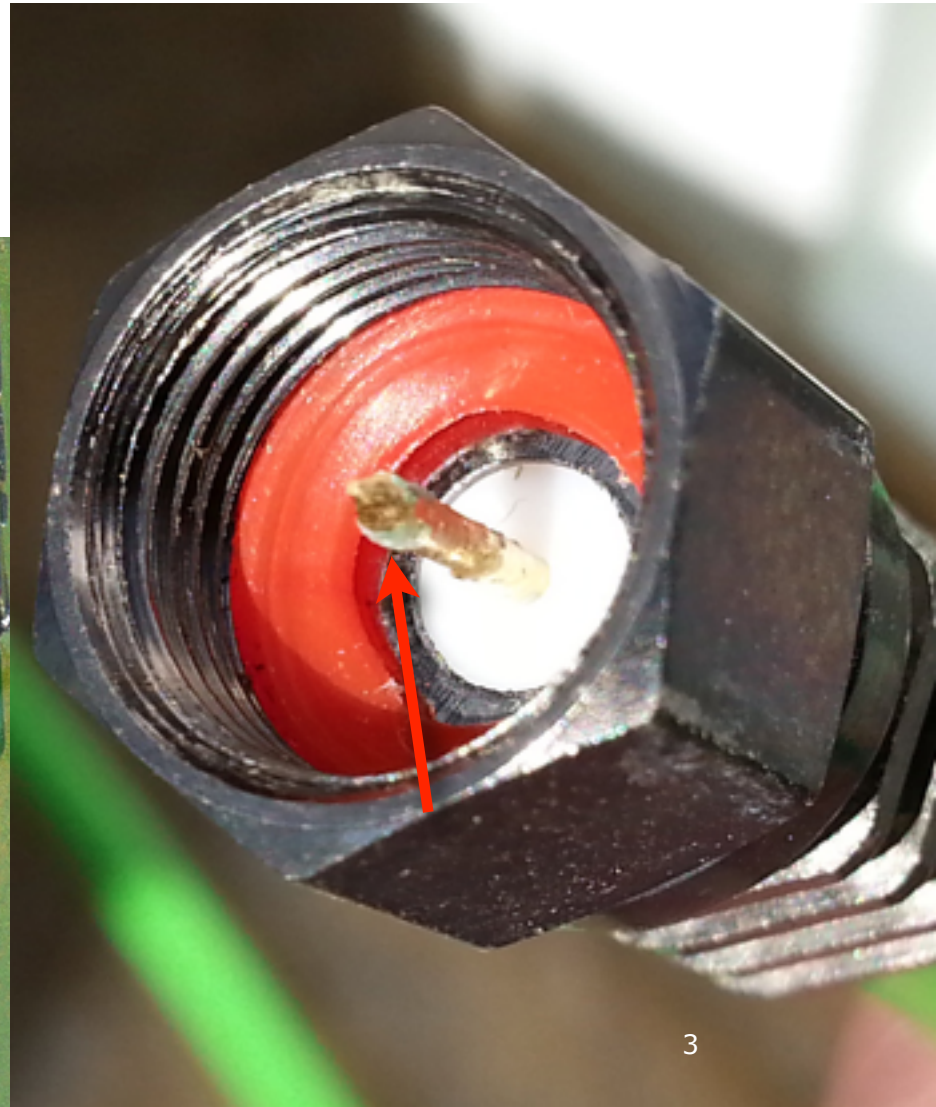
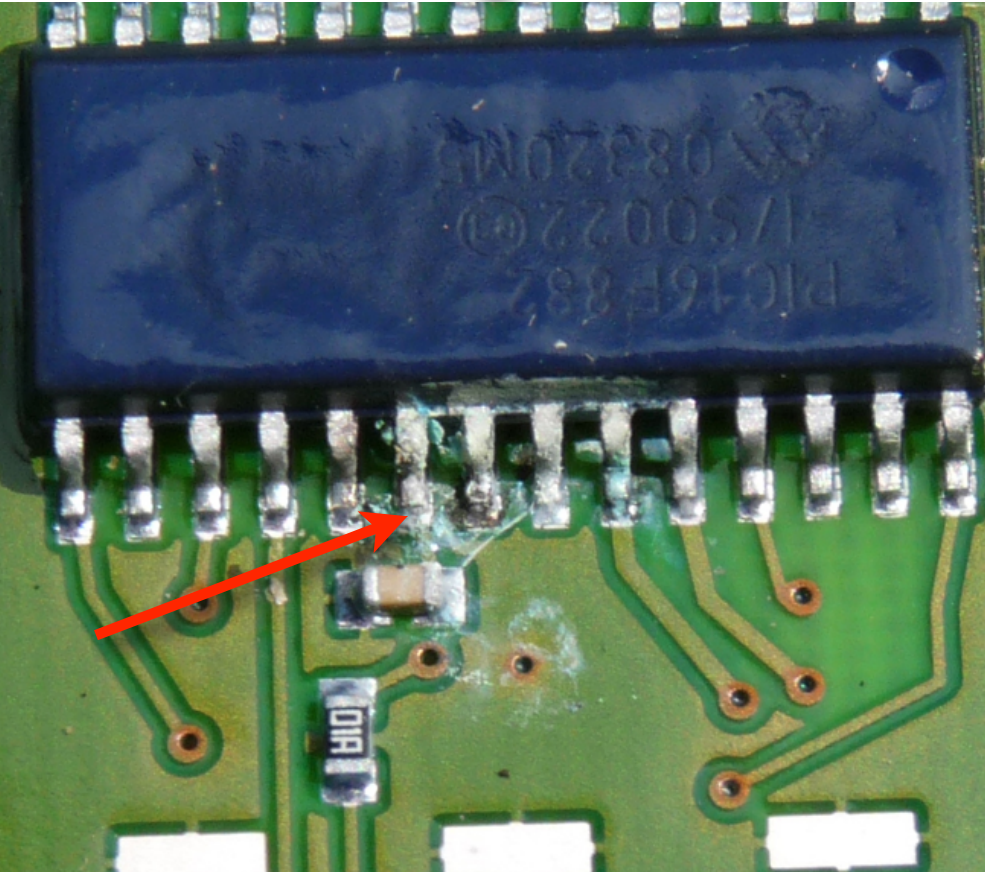
◆ Front end



Update on monitoring the HBA tiles & elements

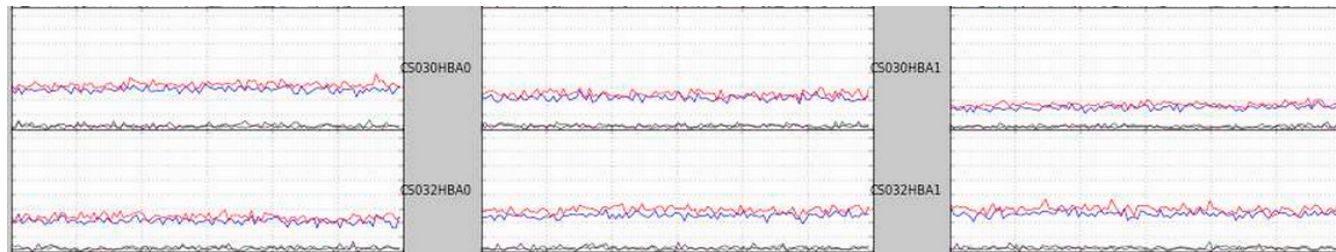
-- degradation of hardware --

- ◆ male connector →
- ◆ FE modem ↓

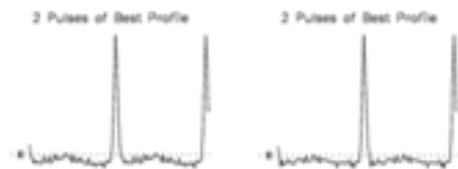


Effects on data -- few examples --

◆ Interferometry

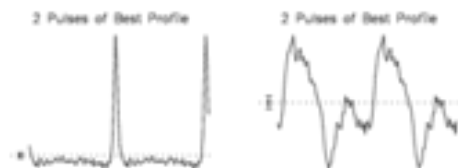


◆ Beamformed



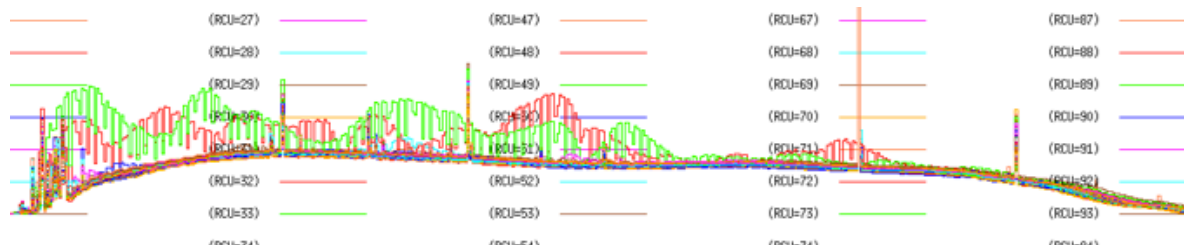
CS SAPO CS011HBA0
B0809+74
ChiSq = 95.338

CS SAPO CS011HBA1
B0809+74
ChiSq = 87.695

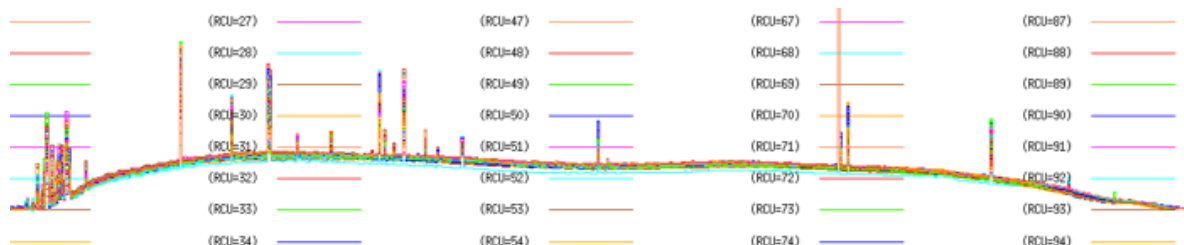


CS SAPO CS026HBA0
B0809+74
ChiSq = 86.653

CS SAPO CS026HBA1
B0809+74
ChiSq = 29.04



◆ Signal per RCU



Station tests

-- HBA, LBA --



◆ HBA station

-48 tiles (96)

-16 elements

-2 dipoles



768 FE & > 3168 connectors per station

◆ Station test

-frequent testing of 10 failure definitions on tile/element level

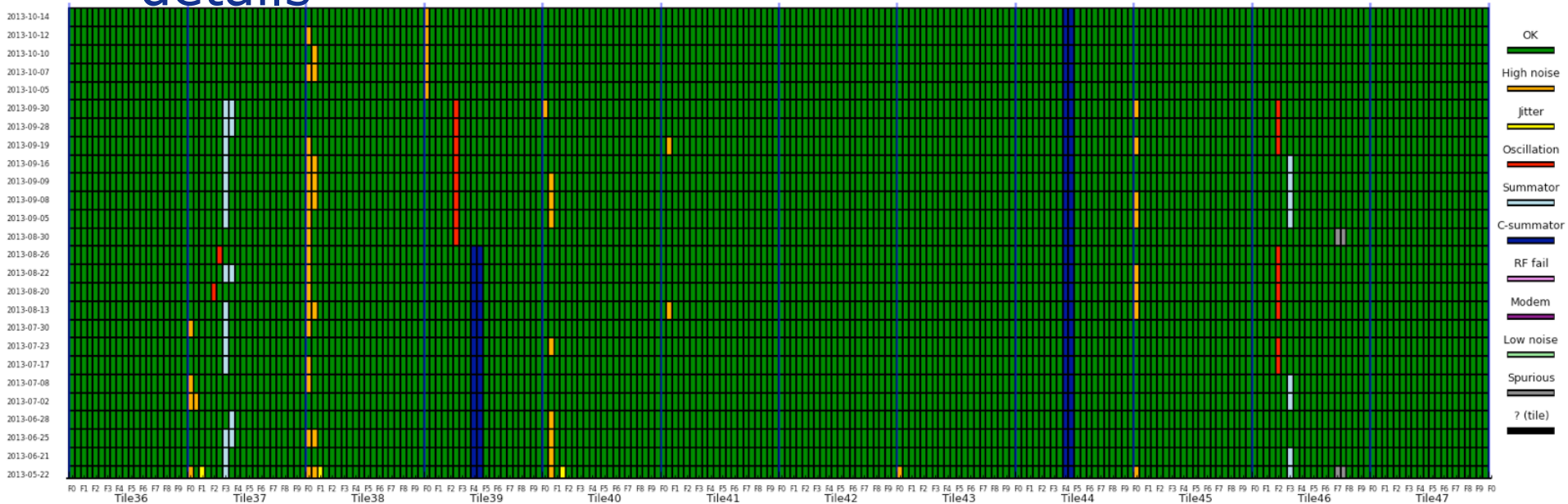
> 15000 errors/stations

Station tests

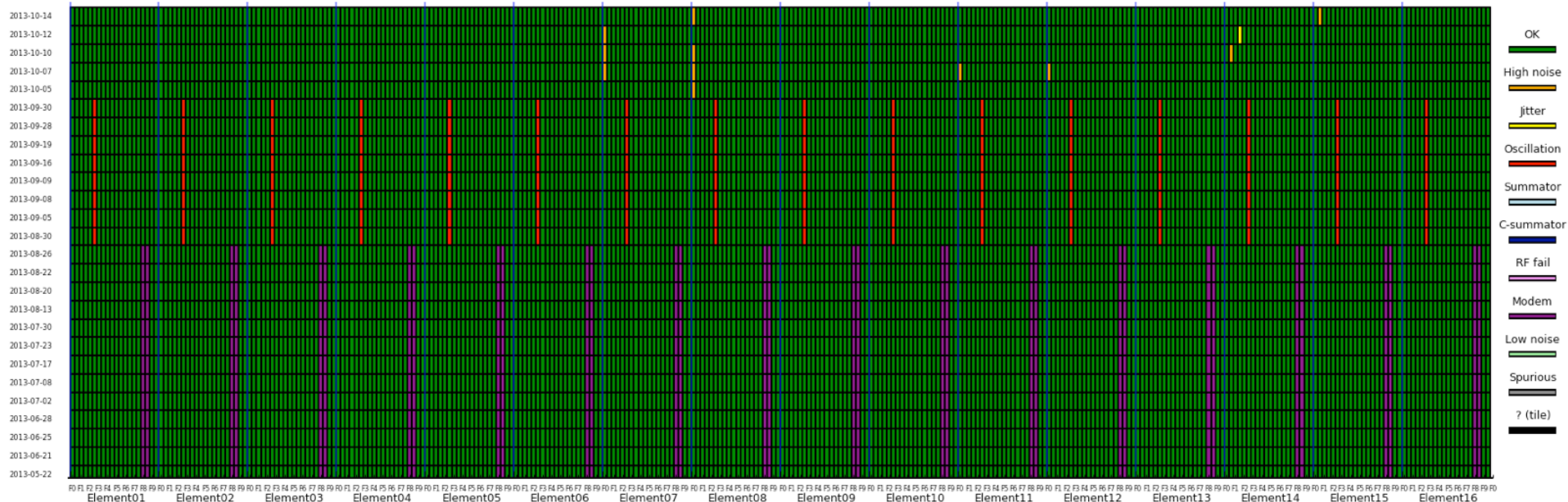


-- details --

Station CS030 -- Tiles 36 to 47



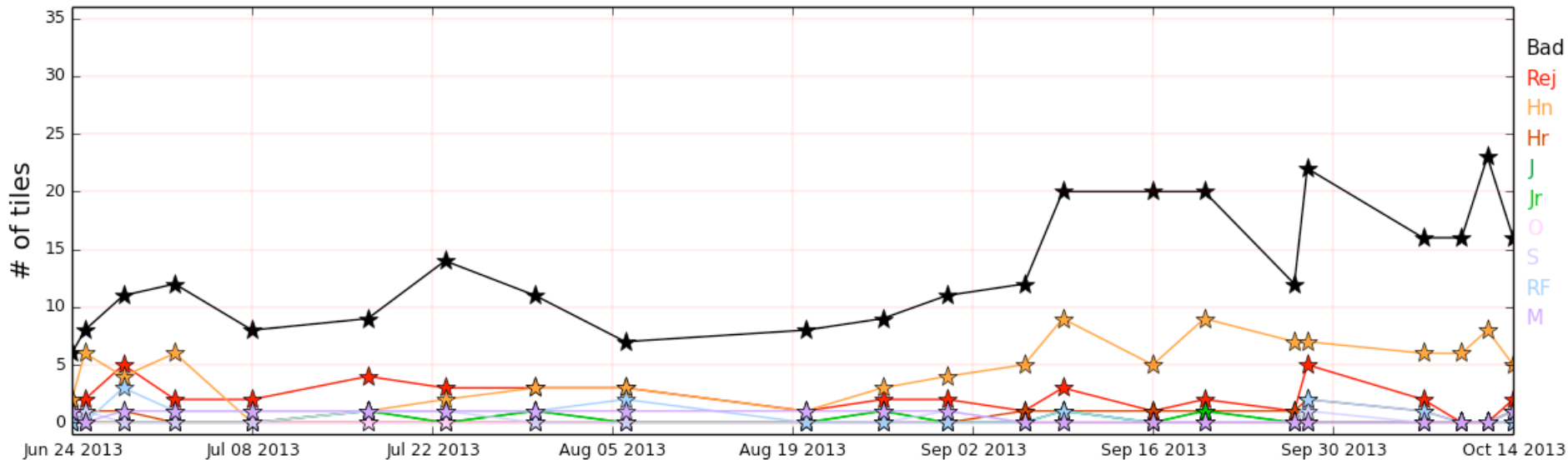
Station CS030 -- Tile039



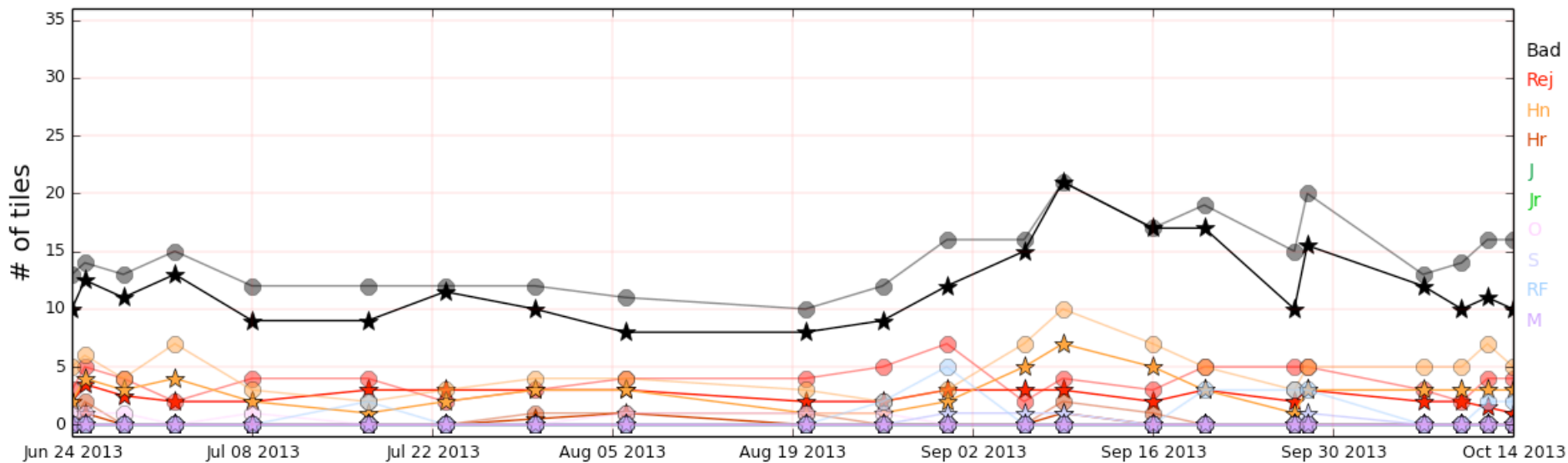
Station tests

-- trends --

Station cs003c



Totals

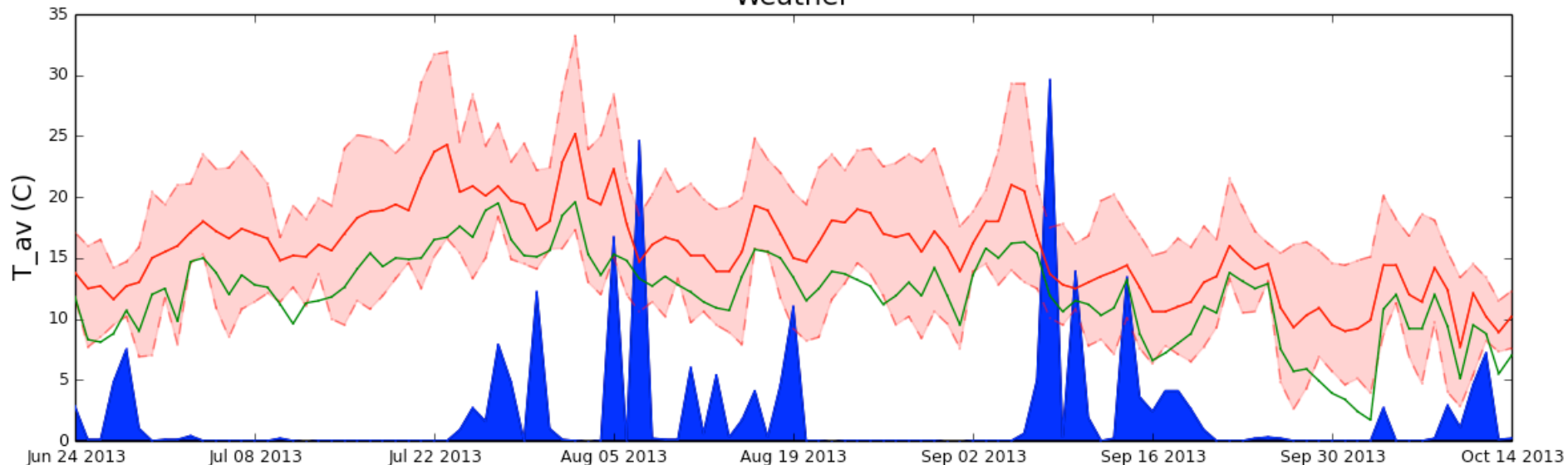


Station tests

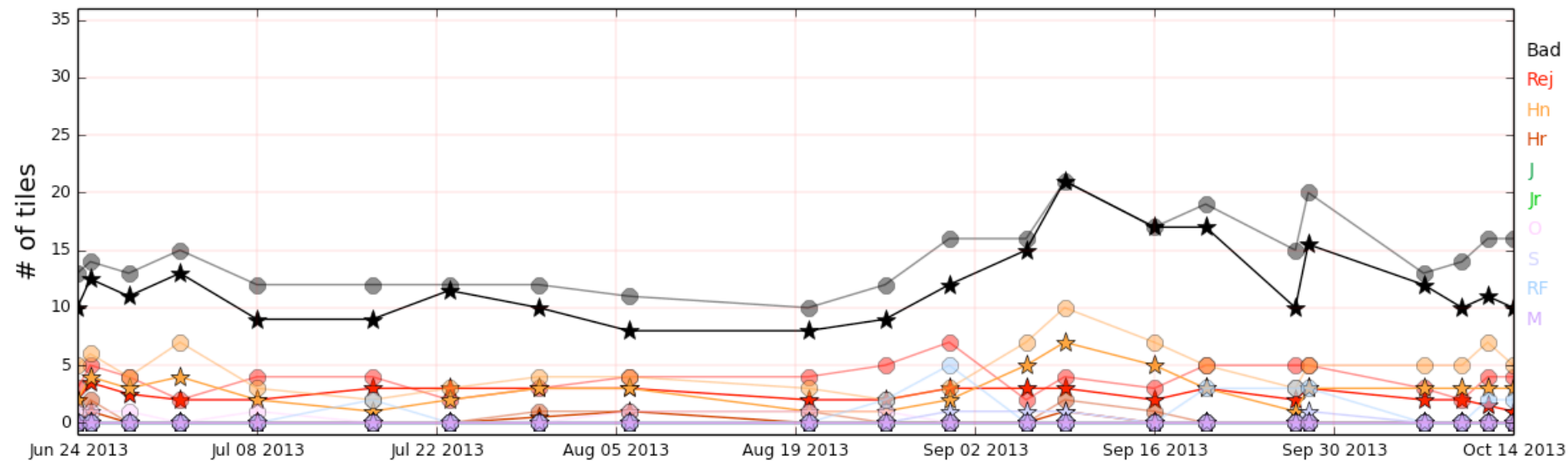
-- trends --



Weather



Totals



Conclusions & Ongoing work...



◆ Message: concerned, but currently under control

- 30% tiles reoccur as being affected in tests
- <5% turned off, stable through maintenance

◆ Ongoing:

- tuning the station tests [LBA history included soon]
- gather statistics >> months
- search for suitable, long-term solutions
- fix it (as good as possible)