

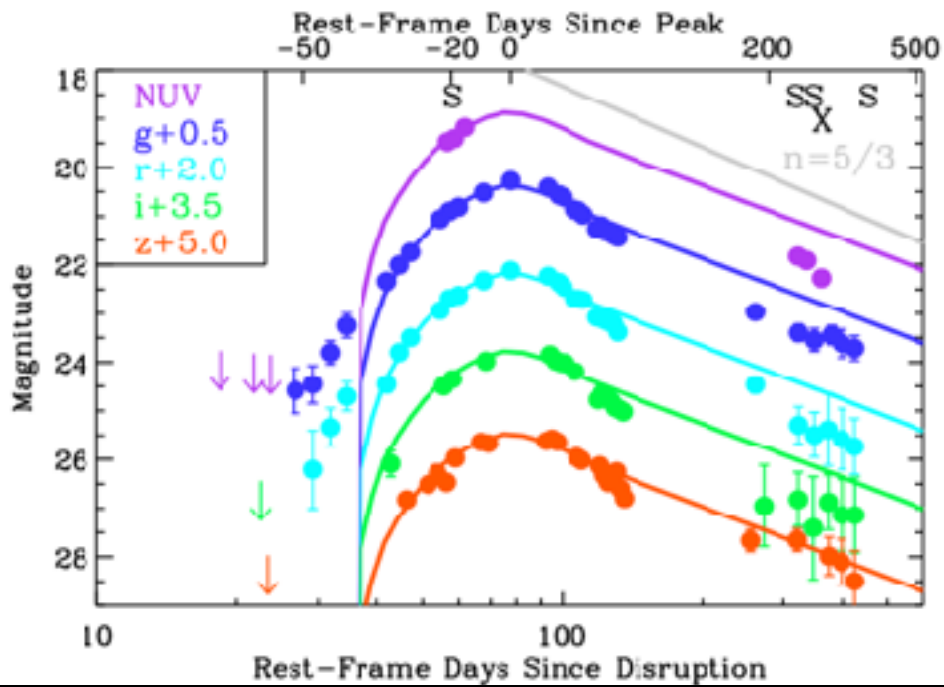
AGN variability campaigns with LSST

- **Science**
- **Cadence**
- **L3 software**
- **Spectroscopy**

- **extreme variables**
- **long timescales**
- **massive spectroscopy**

Sept 2017
Andy Lawrence
Cambridge

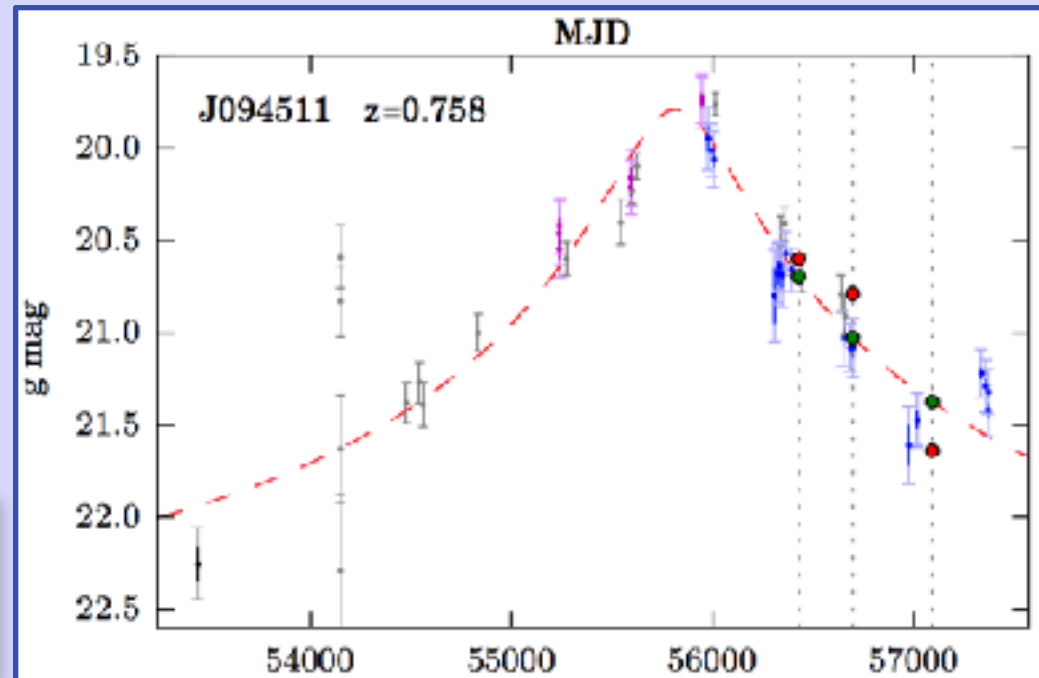
TDEs



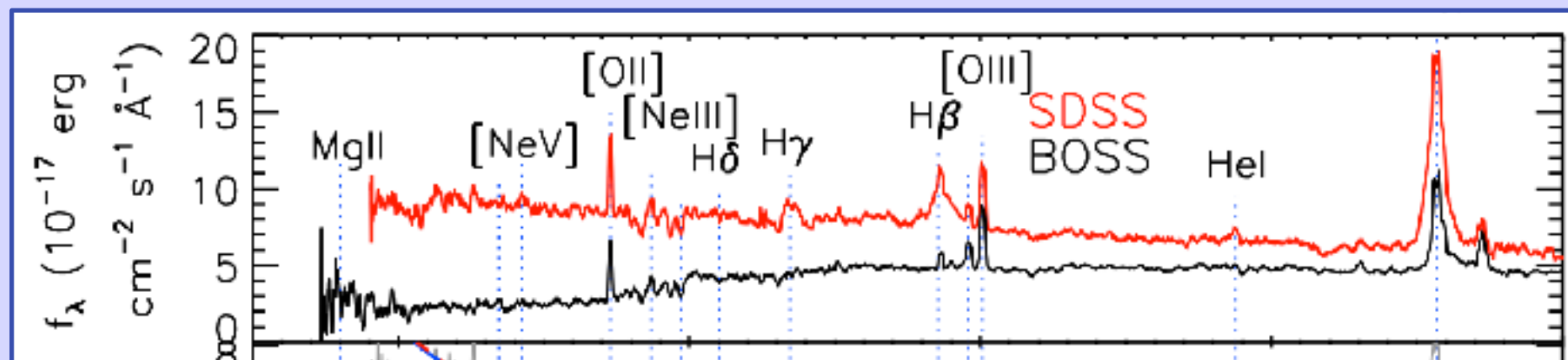
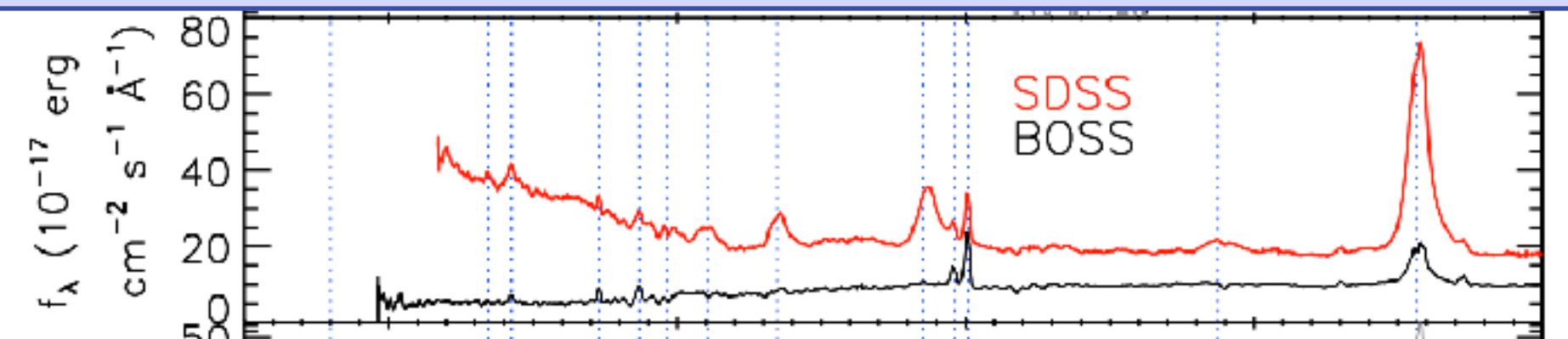
Gezari et al 2012

Bruce et al 2017

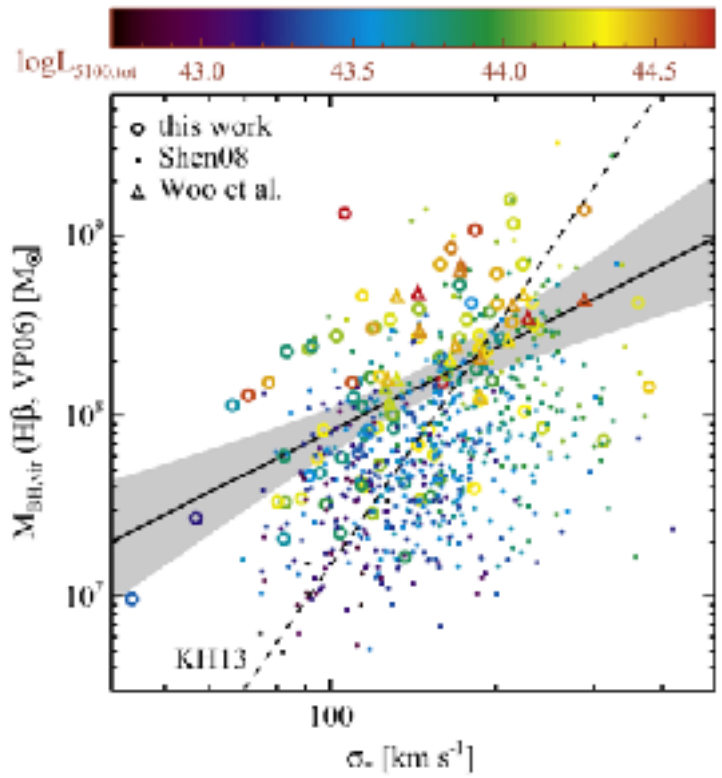
high magnification
microlensing



Changing Look Quasars



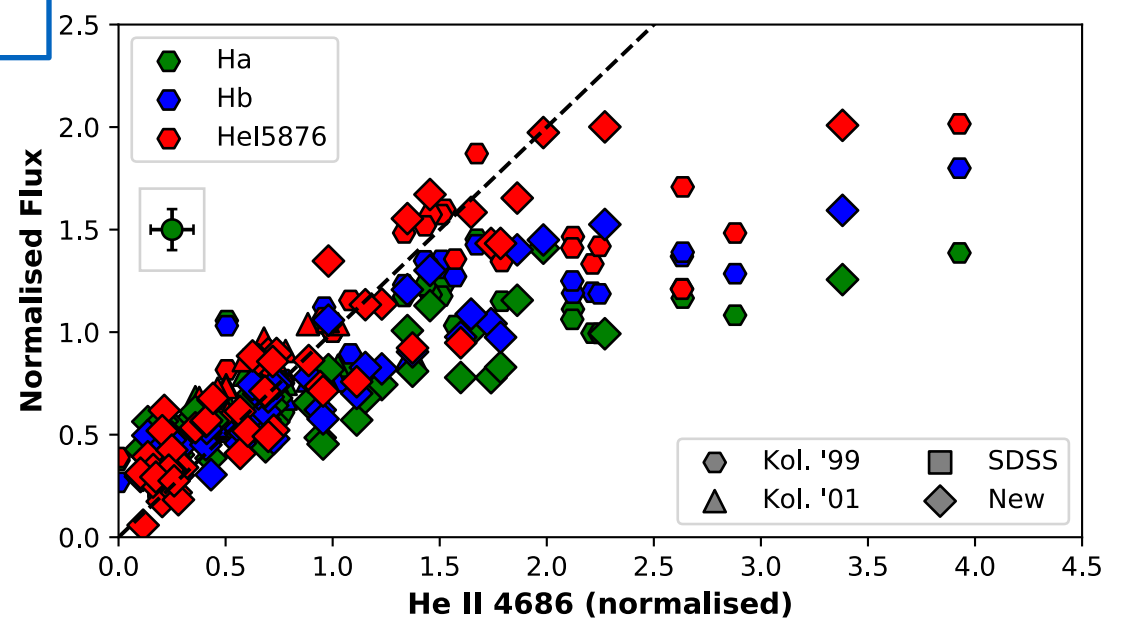
Evolution of M- σ ?



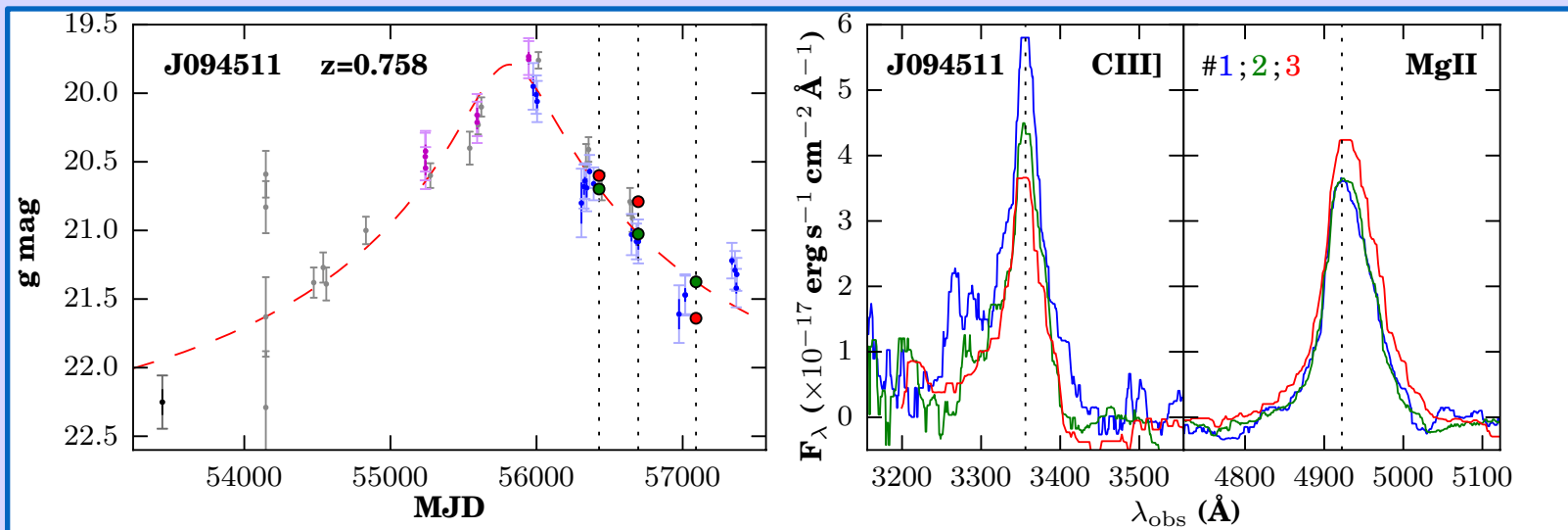
Shen et al 2015

Lawrence et al in prep

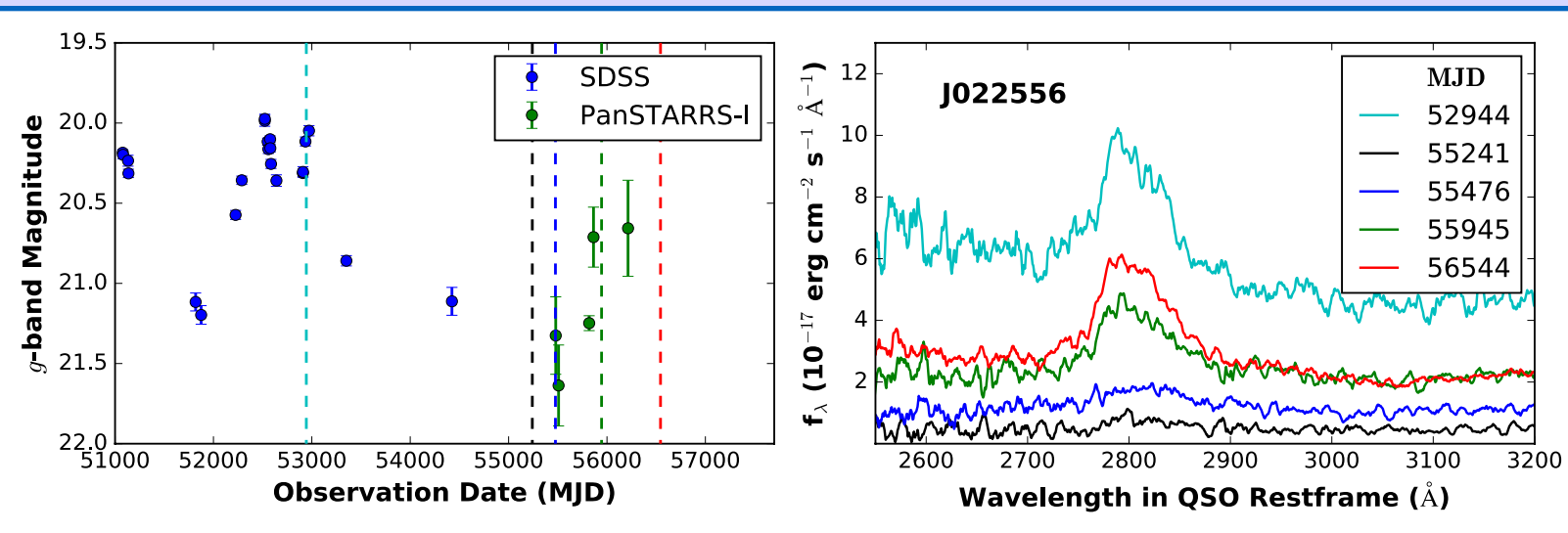
30 years of MKN110: full BLR response curve



big differences in line response!

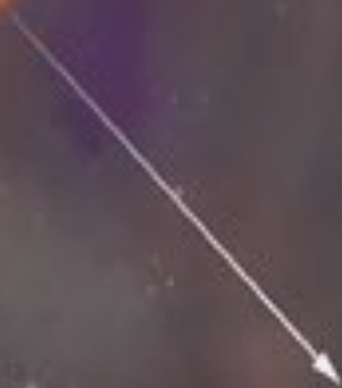


Bruce et al
2015

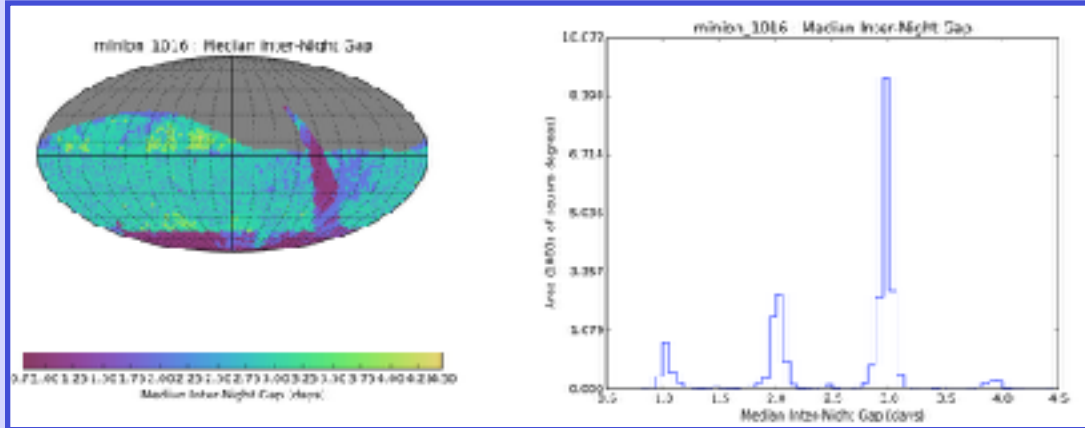


Homan et al
in prep

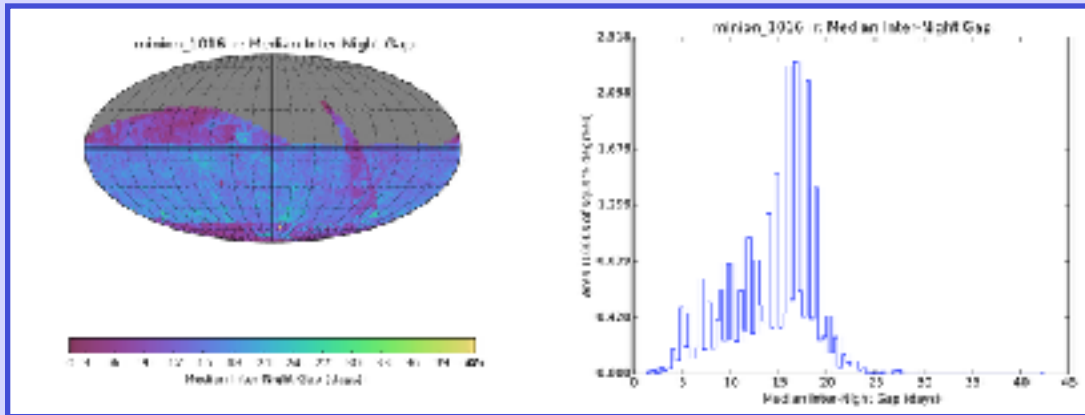
Cadence



uniform cadence



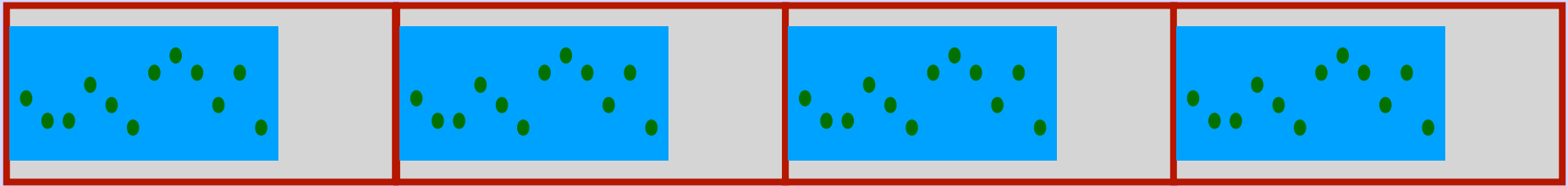
any filter: median 3 days



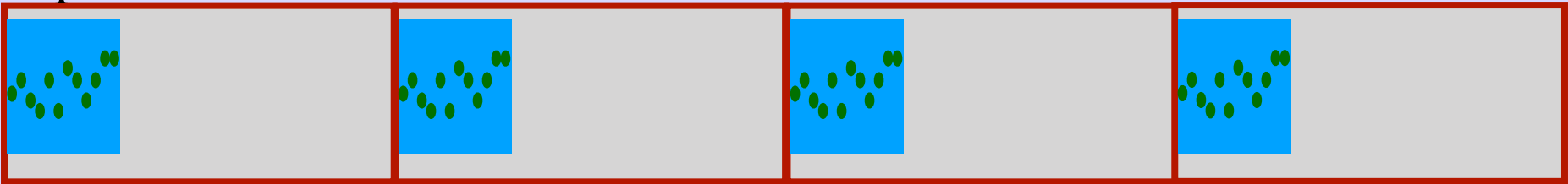
r-band: median 15 days

*bad for TDEs
(like SNe)*

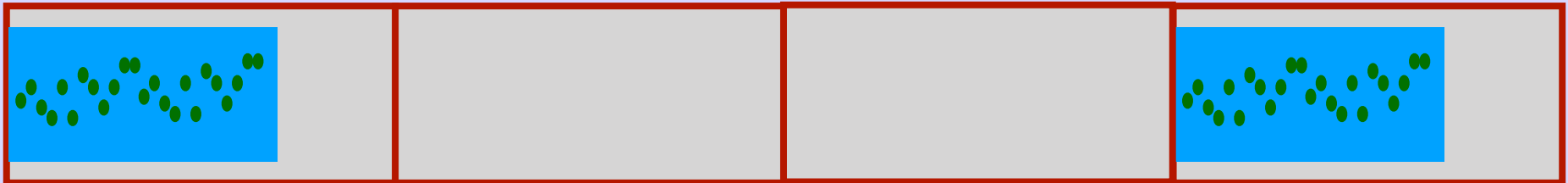
uniform cadence



squeezed season



bad for CLQ, microlensing, general variability



rolling areas

L3 software



UK view

- Find TDEs
- Find CLQ outbursts
- Find slow-risers
- Feed to follow-up
 - Spectra
 - Dense photometry

LSST project

UK project

Community

L1
L2
data

DAC

junk removal
VO integn
classification
history

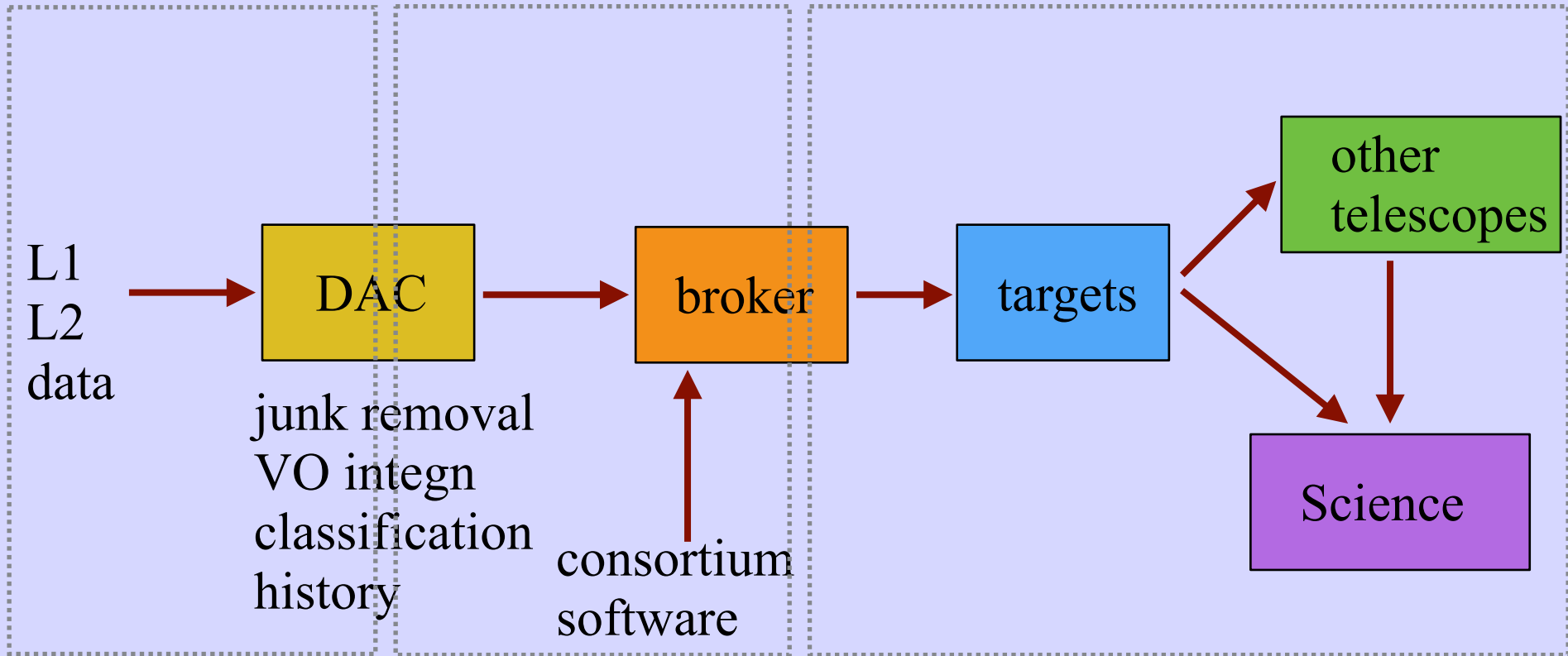
broker

consortium
software

targets

other
telescopes

Science



products needed

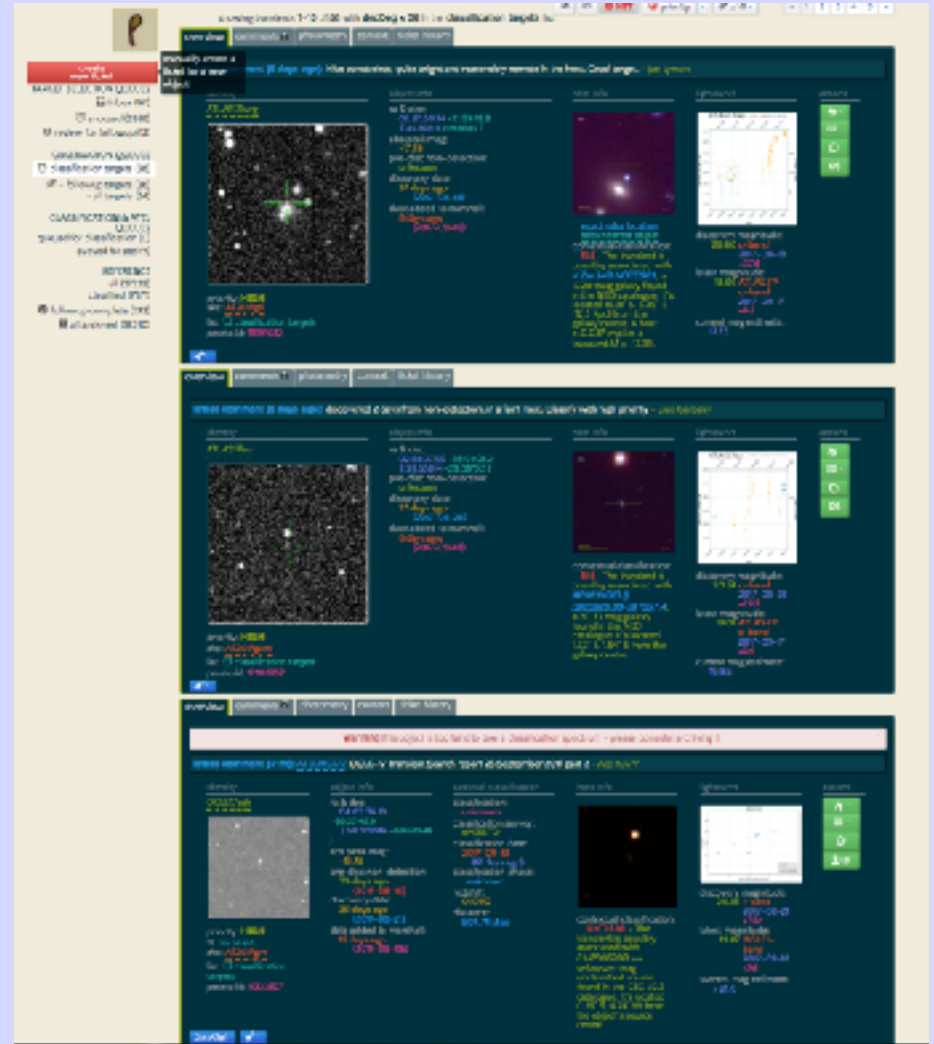
Transient Server

- filter
- classify
- add context
- feed to follow up

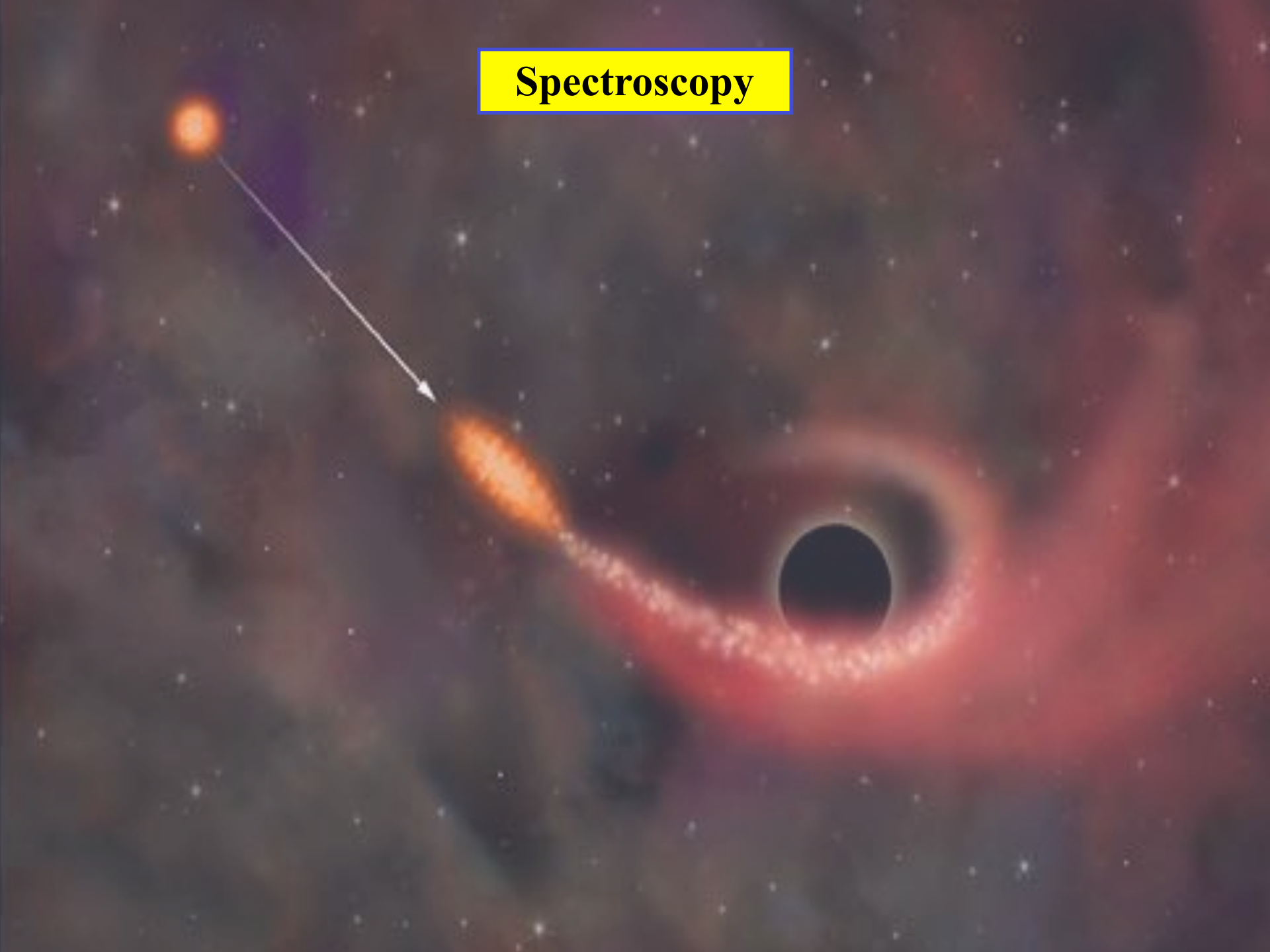
Outburst predictor

- track targets
- model
- forecast outbursts
- feed to follow-up

PESSTO Marshall



Spectroscopy



Open

- issue public alerts
- leave the world to it

Network

- establish co-operating network of telescopes/observers
- subscribe to alerts

Campaigns

- establish consortium
- pre-book slots of time
- always be something going bang!

Rapid Response

c.f. PESSTO

Occasional campaigns

- aimed at Reverb mapping
- several months
- densely sampled
- suited to DDFs

Long term light curves

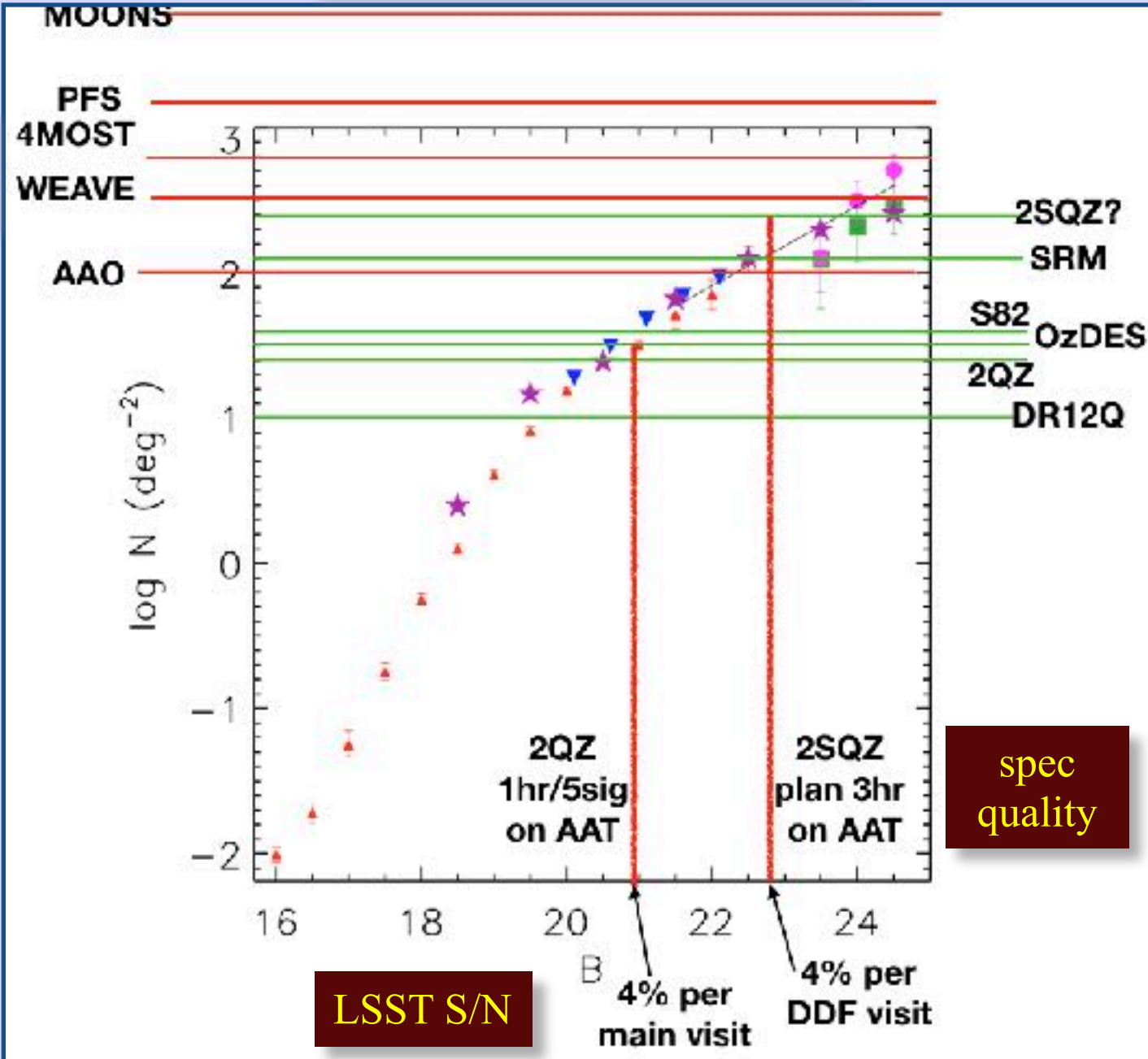
- aimed at CLQs, microlensing, general variability, and high-L RM
- several times a year for ten years
- use legacy fields to get 30 year info
- suited to main survey

Spectroscopic
tracking

start now!

densities and depths

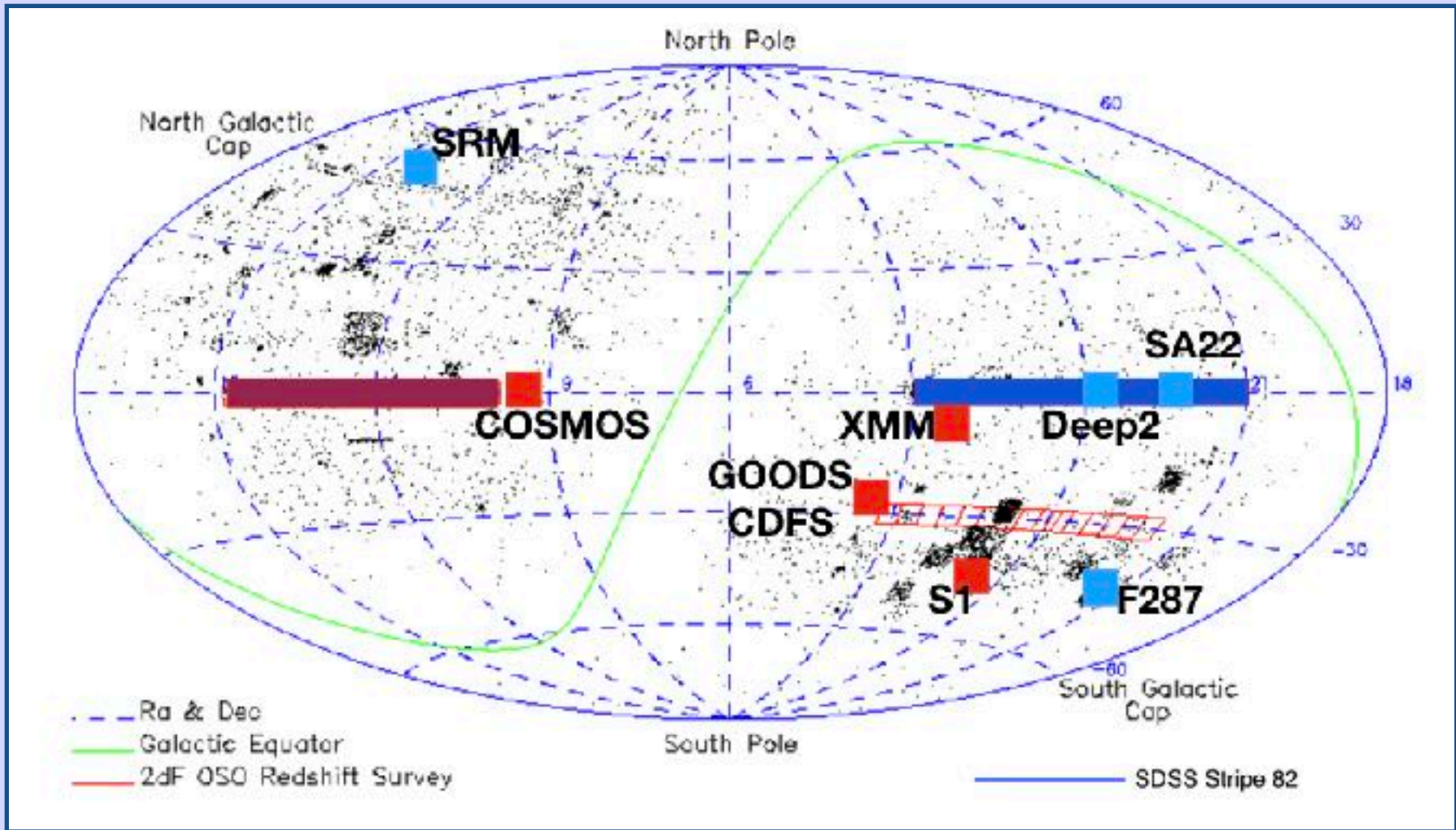
fibre densities



sample densities

share fibres?

Key fields



FIN

