VEGA Programs V50 V43 V67
(metal-poor, seismic, giants)

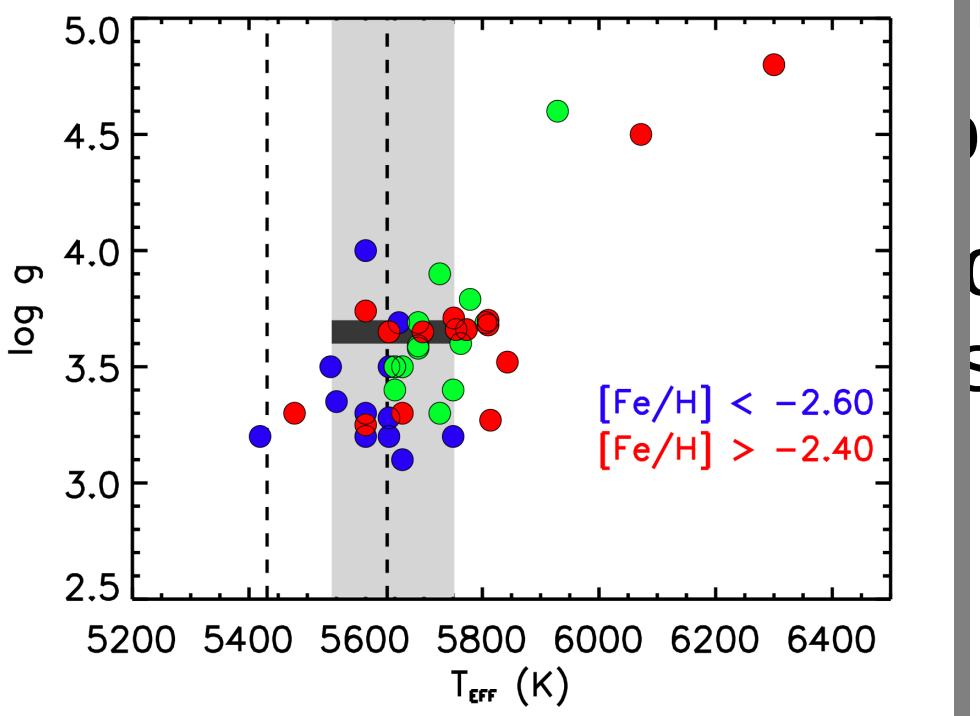
Orlagh Creevey, on behalf of collaborators including
Thevenin, Bigot,
Heiter, Huber, White, Boyajian

Nice - 16 January 2017

Metal-poor stars (V50)

- Determination of Teff for metal-poor stars
- Compare with spectroscopic methods
- Surface brightness relations
- Constraints on stellar fundamental parameters to determine their masses and ages
- Teff, logg -> Abundances -> tests of diffusion

Metal-poor stars (V50)



metal-poor stars

pic methods

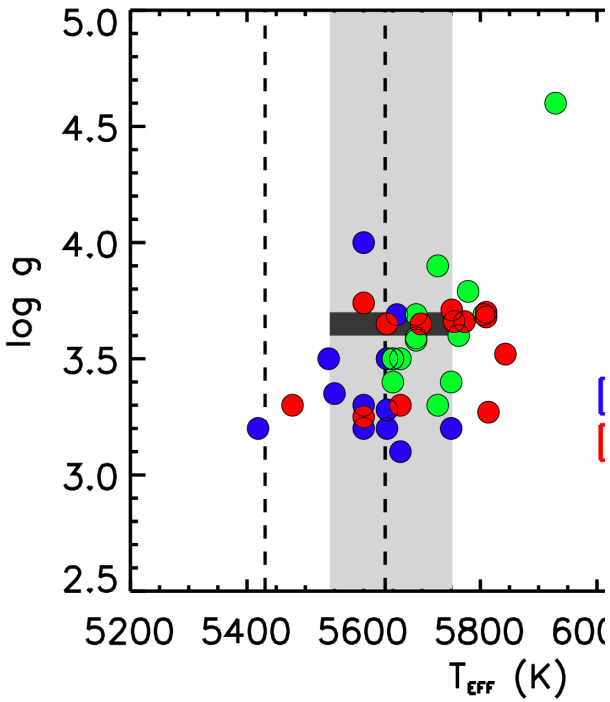
damental parameters

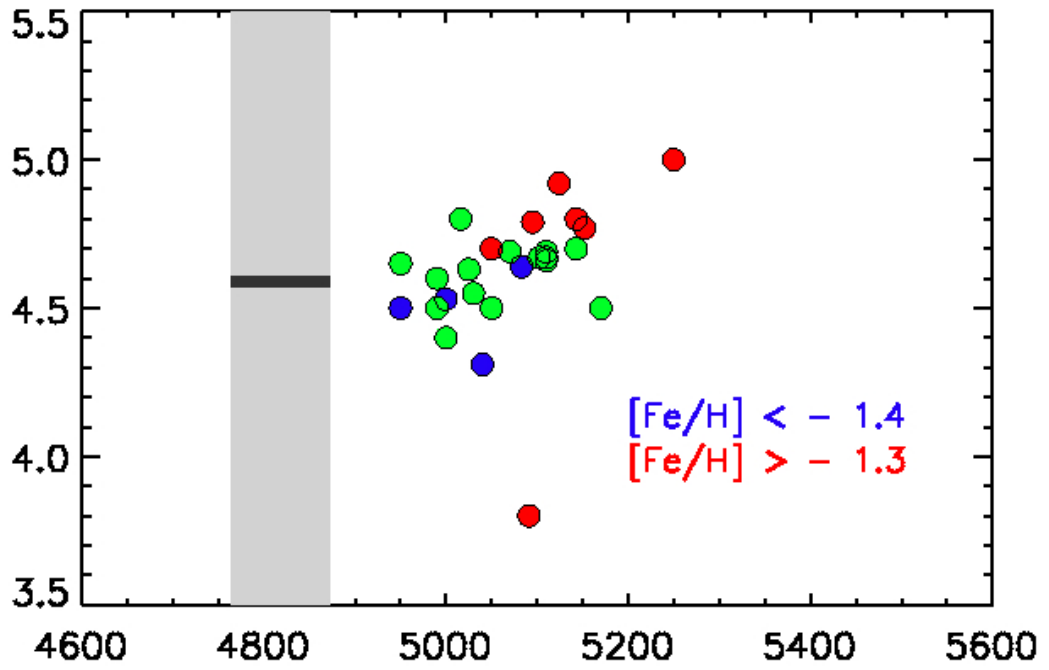
s and ages

-> tests of diffusion

HD140283@VEGA

Metal-poor stars (V50)





HD140283@VEGA

Gmb1830=HD103095

V50 Metal-poor

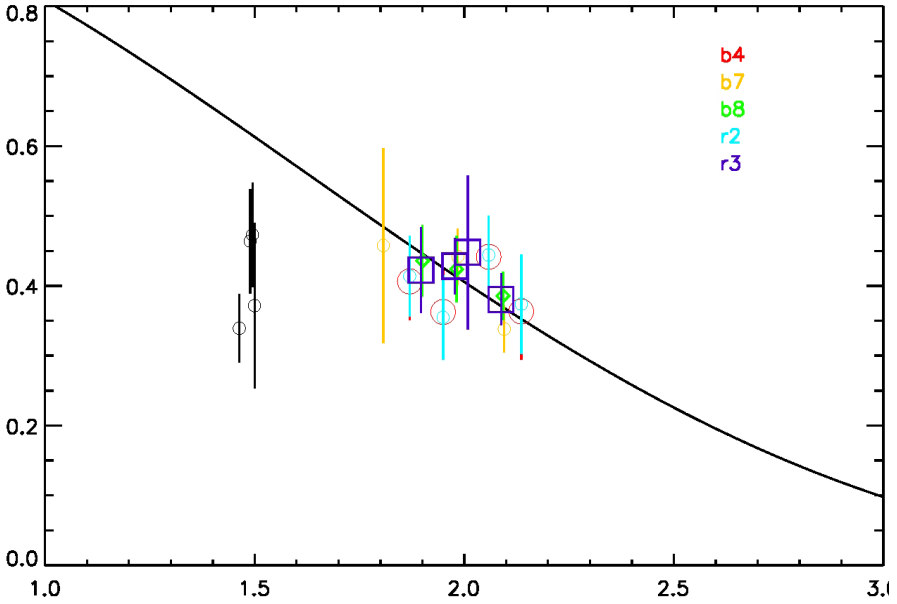
- HD140283 - published
- HD107328 – 2015 (11) 2016-12-10 (1)
- HD220009 – 2013 (5), 2016-06-17 (3) 2016-07-27 (3)
- HD221170 – 2015 (10) 2016-07-30 (2), 2016-08-21 (1), 2016-08-23 (4)
- HD148897 - 2012 (6), 2013 (3)
- HD103095 -- 2015-06-02, 2015-06-06 not great data +2016-12-12 (3)
- HD85503 -- 2015-12-01 (4), 2015-12-02 (3), 2015-12-04 (1) +2016-12-10 (1)
- HD89962 -- 2015-11-30 (1), 2015-12-02 (3), 2015-12-03 (3)
- HD22879 -- 2015-12-02 (1) +2016-11-23 (2)
- HD198809 -- OC & NN, 2 pts 2012-06-24, 2012-07-14 (2NN)
- HD165341 -- A&B, 2015-05-31 (5), 2015-07-12 (4), also V43 2016-07-29 (B,4)
- HD18907 (dec = -28,no data yet)

Overview of V50 2016 data

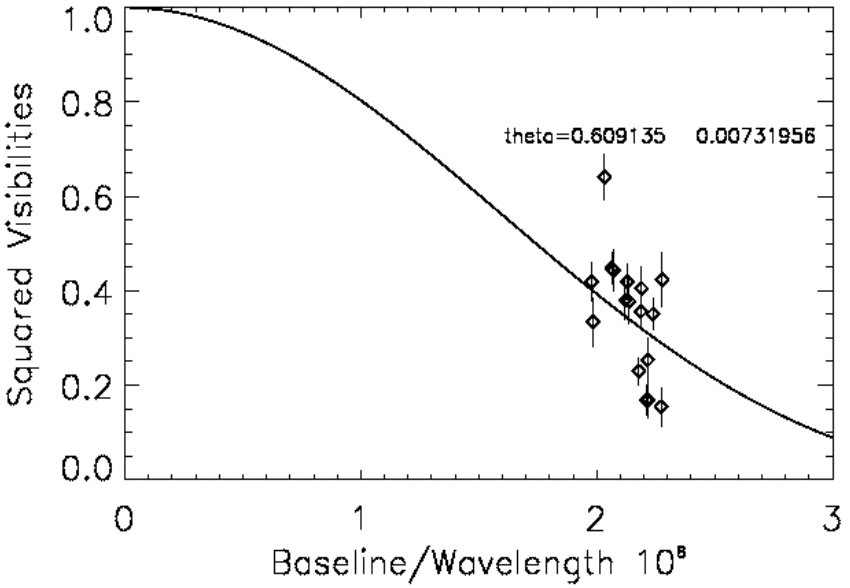
- Proposed 4 (min 3, 25 hrs?) nights all year, obtained 13.5 hrs
- To finish
  - HD107328 – 120 mins – 50 mins (note: data pi ame in VegaDB?)
  - HD221170 – 120 mins – 280 min
  - HD220009 – 85 mins – 220 mins
  - HD103095 – 200 mins – 120 mins (no data PI in VegaDB)
- New
  - HD 22879 – 300 mins – 85 mins
  - HD 18907 – 240 mins – 0 mins
  - HD 85503 – 160 mins – 50 mins
  - HD 89962 – 240 mins – 0 mins
- Other

Total V50 : 14/25 hrs

HD221170



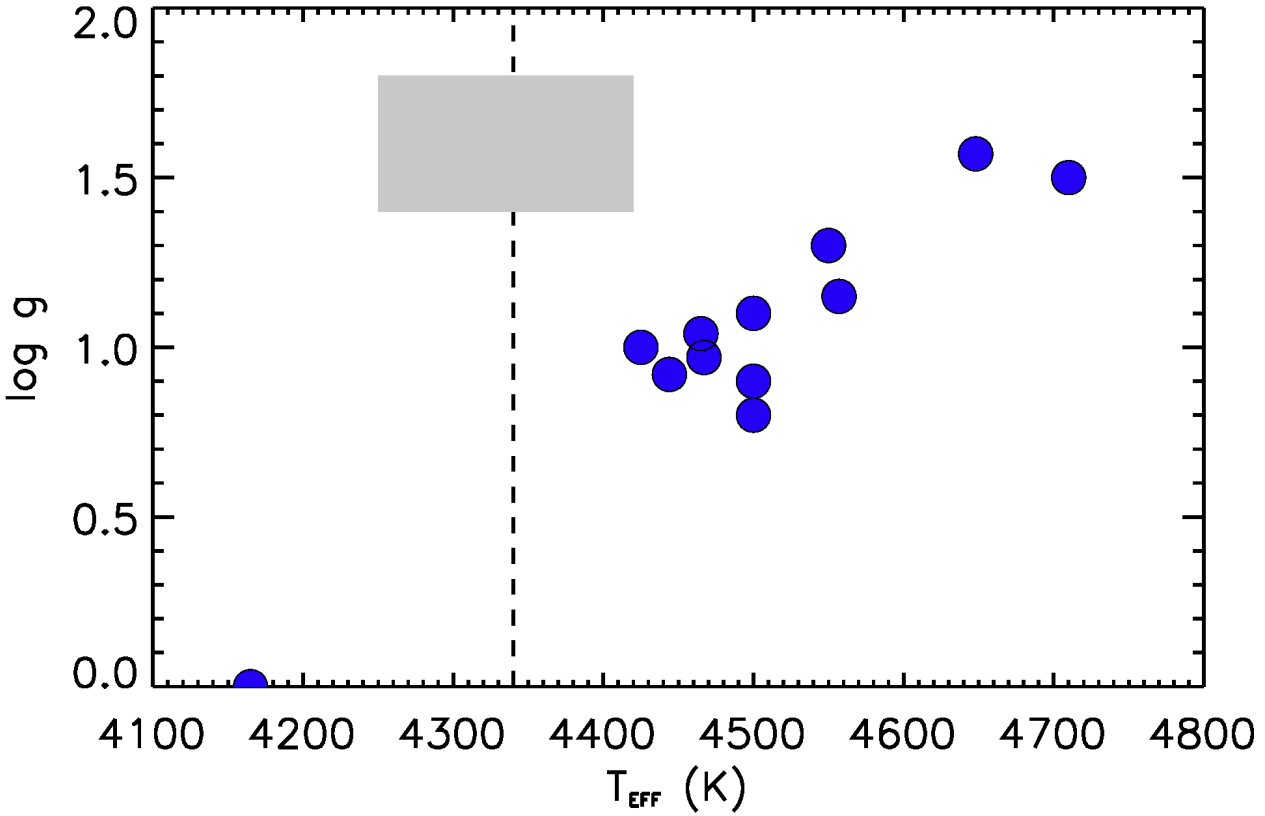
2015 Data: consistent results,
but check strange points



2016 data: consistent

L, R, Teff = 153, 21, 4340 K (Hipp)
L, R, Teff = 265, 29, 4330 K (Gaia)

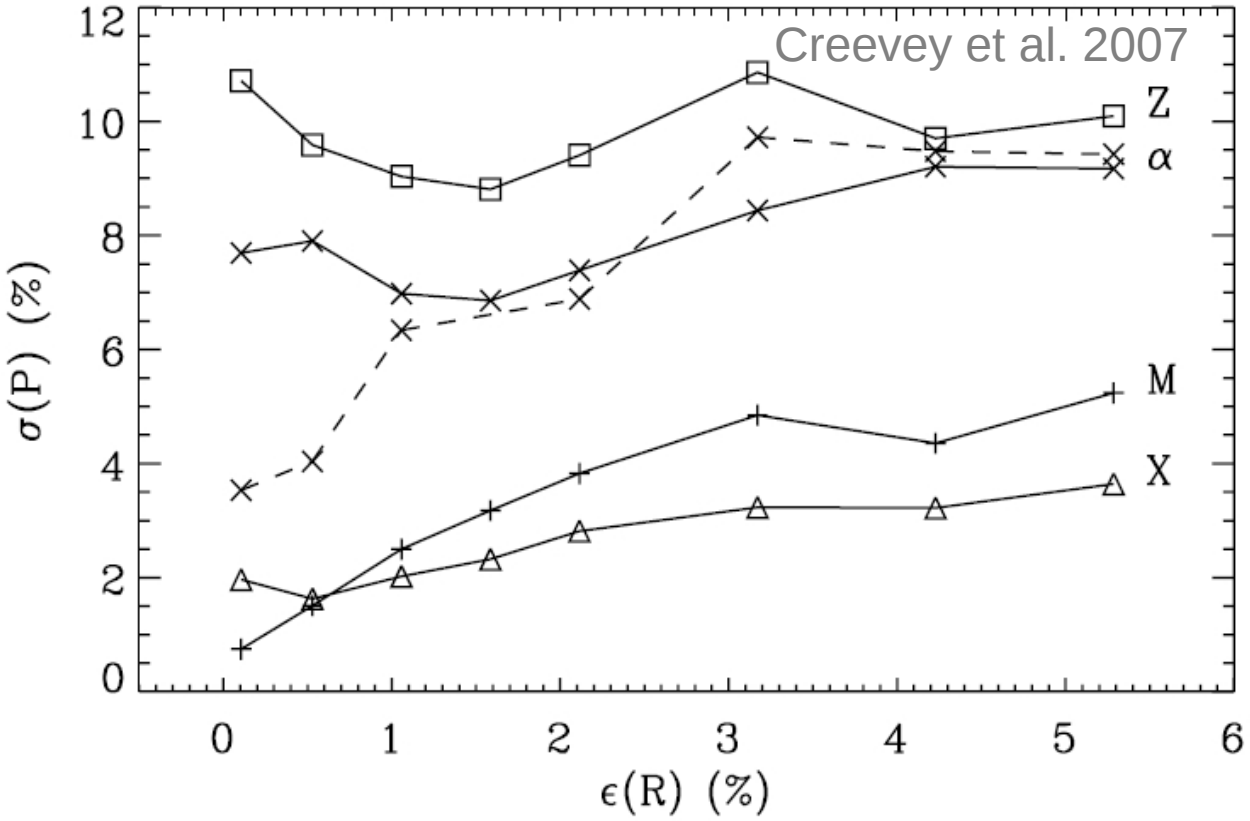
HD221170



VEGA constraints on R and Teff (grey/black). Blue dots are Literature values from spectroscopic analysis.

V43 - Seismic

- Using a radius as a complementary constraint in stellar modelling



Uncertainties in stellar model parameters as a function of error in radius

V43 - seismic

- HD 165341 (A&B, V43, V50)
- HD 181420
  - 2012-07-16 (1) 2014-07-05 (3) 2014-07-07 (1)
  - 2014-08-28 (1) 2014-08-30 (1)
- HD 52265
  - 2013-11-01 (3) 2014-10-22 (3) , 2016-11-19 (2), 2016-11-20 (2)
- HD 50890
  - 2014 (6pts) 2015-11-02 (2), 2016-11-19 (1) , 2016-12-12 (1)
- HD 43587
  - 2014-10-24 (2) 2015-11-05 (2) 2015-12-03 (3), 2016-11-20 (2), 2016-12-12 (1)
- HD 42618 (no data yet)
- HD 181907 2012-06-21 (1), 2012-07-20 (1), 2012-07-22 (1), 2013-05-22 (2),2013-05-23 (2), 2013-05-24 (3), 2016-08-21 (3), 2016-08-22 (3)

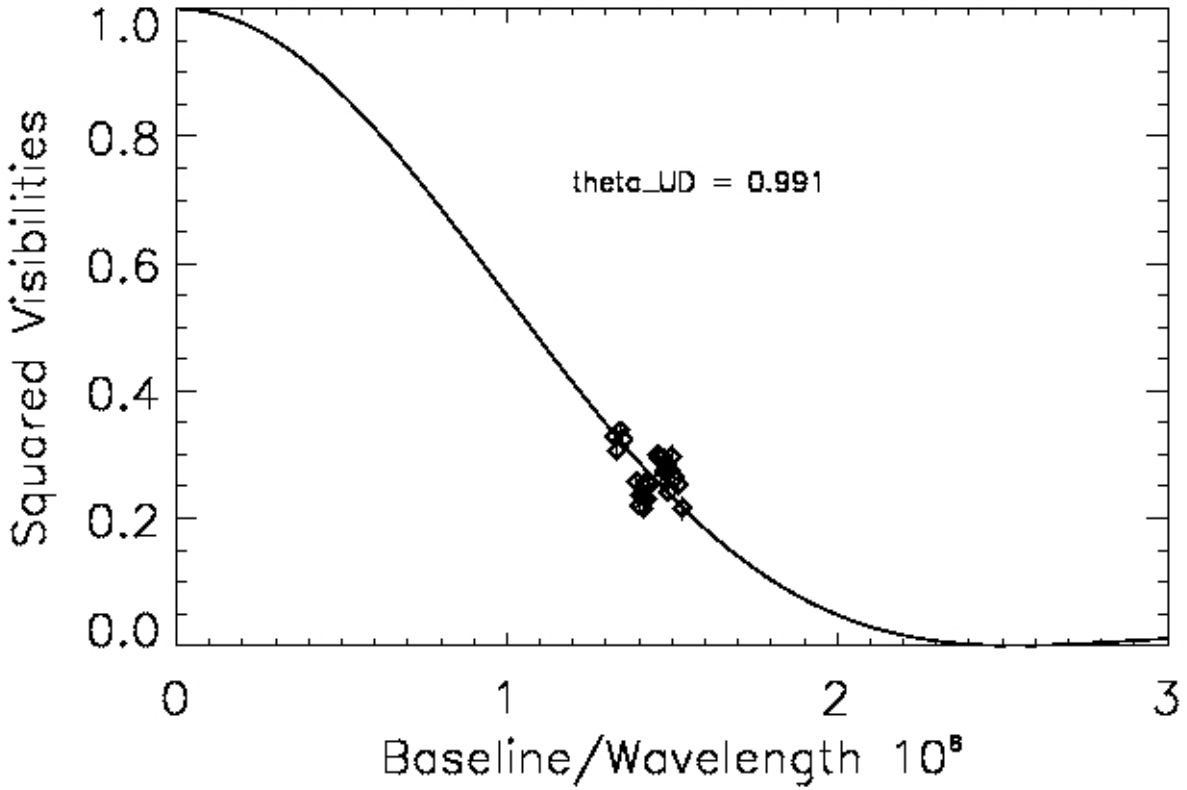
Overview of V43 2016 data

- V43 Proposal = 1.75 nights (17 hrs) Nov/Dec
- New star:
  - HD 42618 – 300 mins – 0 mins
- To finish:
  - HD 52265 – 300 mins – 160 mins
  - HD 50890 – 120 mins – 120 mins
  - HD 43587 – 300 mins – 140 mins
- HR 7349 (Lionel)
  - No previous request: obtained 200 mins August

Total V43 : 7/17 hrs + 3 hrs

HR7349

- 2016 data in agreement with 2013
- Reprocessed all, then vegadrs broke!

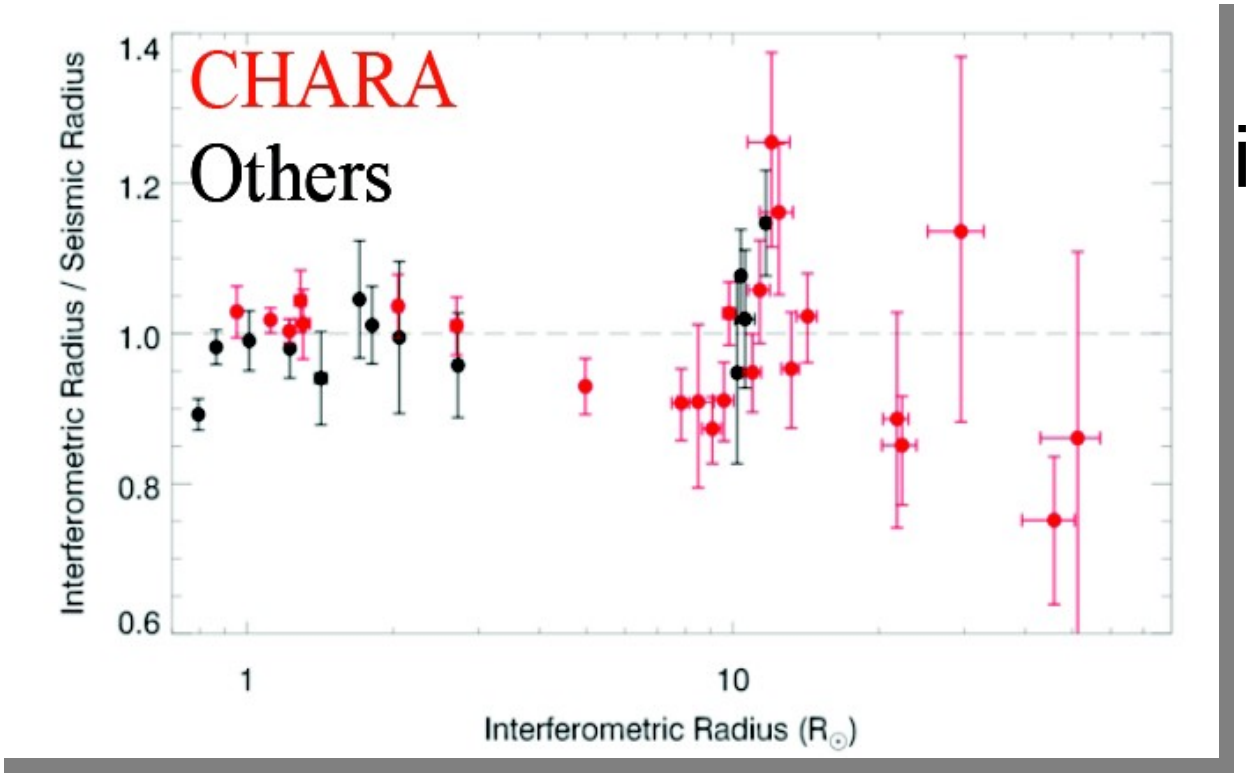


V67 – seismic giants

- Test asteroseismic scaling relations for giants
- K2 program, Inteferometric data, APOGEE
- Huber, Creevey, White, Boyajian
- Brightest giants in K2 field, ~8/campaign

V67 – seismic giants

- Test asteroseismic scaling relations for giants
- K2 program, Inteferometric data, APOGEE
- Hub
- Brigl ign

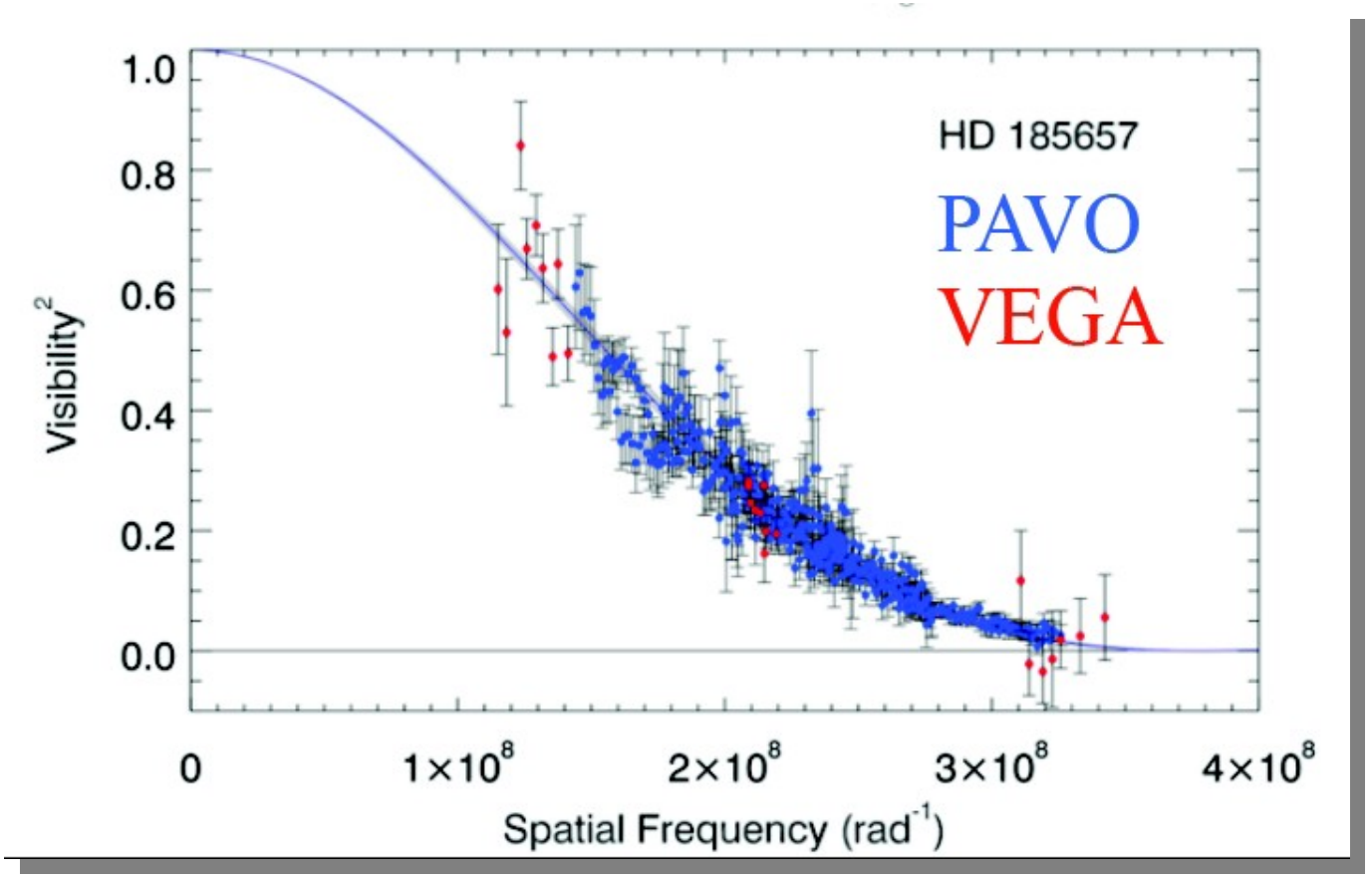


V67: Giants 2016 data

- HD 214028: 2016-07-27 (5), 2016-08-23 (3), 2016-08-24 (3)= 200mins
- HD 182896: 2016-07-29 (4), 2016-08-21 (1), 2016-08-23 (1), 2016-09-30 (2) = 335 mins
- HD 185657: 2016-07-29 (3), 2016-07-30 (2), 2016-08-21 (2), 2016-08-23 (2), 2016-10-01 (3) = 470 mins [2015-08-30 (6 3T)]
- HD 6386: 2016-11-19 (3), 2016-12-10 (2) = 200 mins
- HD 4526: 2016-11-23 (2) = 80 mins
- HD 26162: (last year)

Total V67 : 21 hrs, 2 nights asked

Comparison of VEGA/PAVO



Work in progress. Visit T White to OCA

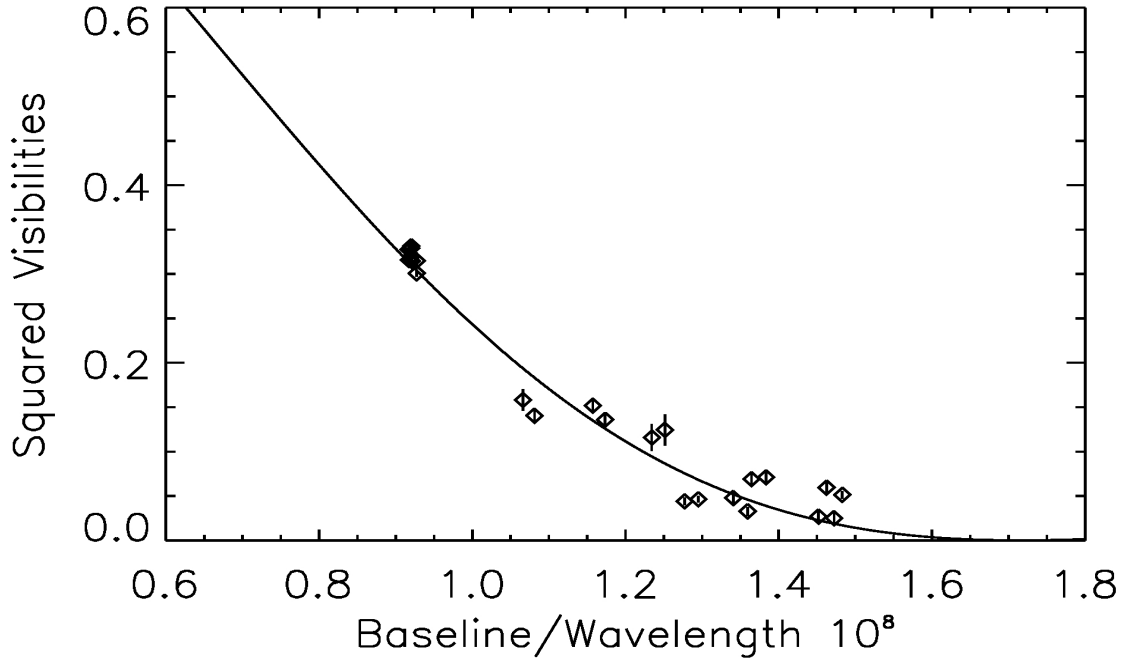
And ....

- Stagiaire in 2016: processed V43 data
- Visit T White to work on V67 +
- V50 with Heiter/Thevenin priority
- HR7349: reprocessing data (few nights left, where not peak found). Then Lionel has everything in hand.
- Problems for processing is not finding the peak!
- Nicolas' tool very useful and easy, although for changing some things it is difficult to navigate through programs ('unofficial').
- Vegadrs: how to make file open in current directory (default /data/USER/)

Merci!

HD 165341 A & B

- 2012-04-18 (3), 2012-05-20 (3), 2012-05-21 (2)
- 2015-05-31 (6) 2015-07-12 (4) B not done



1.35 – 1.50 mas
Re-analysis of 2012 data