PACS Photometer NEP measurements on OD0453

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Req. 1.1.1bis Determination of the optimum bias settings for responsivity/NEP

1.1.1bis - A. History

Version	Date	Author(s)	Change description
1.0	14 JUN 2011	K.Okumura	First issue

1.1.1bis - B. Summary

This is the first NEP mesurements during the routine phase on OD 453.

1.1.1bis - C. Data Reference Sheet

Table 1: Data used for the analyses

OD	date	OBSID	filter	blue dV	red dV
453	09 Aug 2010	1342202350	blue	2.2V	1.8V
453	09 Aug 2010	1342202351	blue	2.4V	2.0V
453	09 Aug 2010	1342202352	blue	2.6V	2.2V
453	09 Aug 2010	1342202353	blue	2.8V	2.4V
453	10 Aug 2010	1342202356	green	2.2V	1.8V
453	10 Aug 2010	1342202357	green	2.4V	2.0V
453	10 Aug 2010	1342202358	green	2.6V	2.2V
453	10 Aug 2010	1342202359	green	2.8V	2.4V

1.1.1bis - D. Test Description

The measurements are based on 8×4 raster which puts a selected point source on 4 different locations on each matrix. The flux is measured by the aperture photometry. The noise is measured on a off position. We are interested in the relative values of the NEP as a function of the bias values as shown in the above table. Therefor the flux of the source is here not relevant.

1.1.1bis - E. Results

Some results for the blue filter are shown in Figs. 1 and 2. Those for the green filter are shown in Figs. 3 and 4. The results for the red detectors are shown from Figs. 5 to Figs. 8.

1.1.1bis - F. Conclusions

The general trend of increasing NEP with increasing bias is unchanged.

1.1.1bis - G. IA scripts used / remarks on PCSS

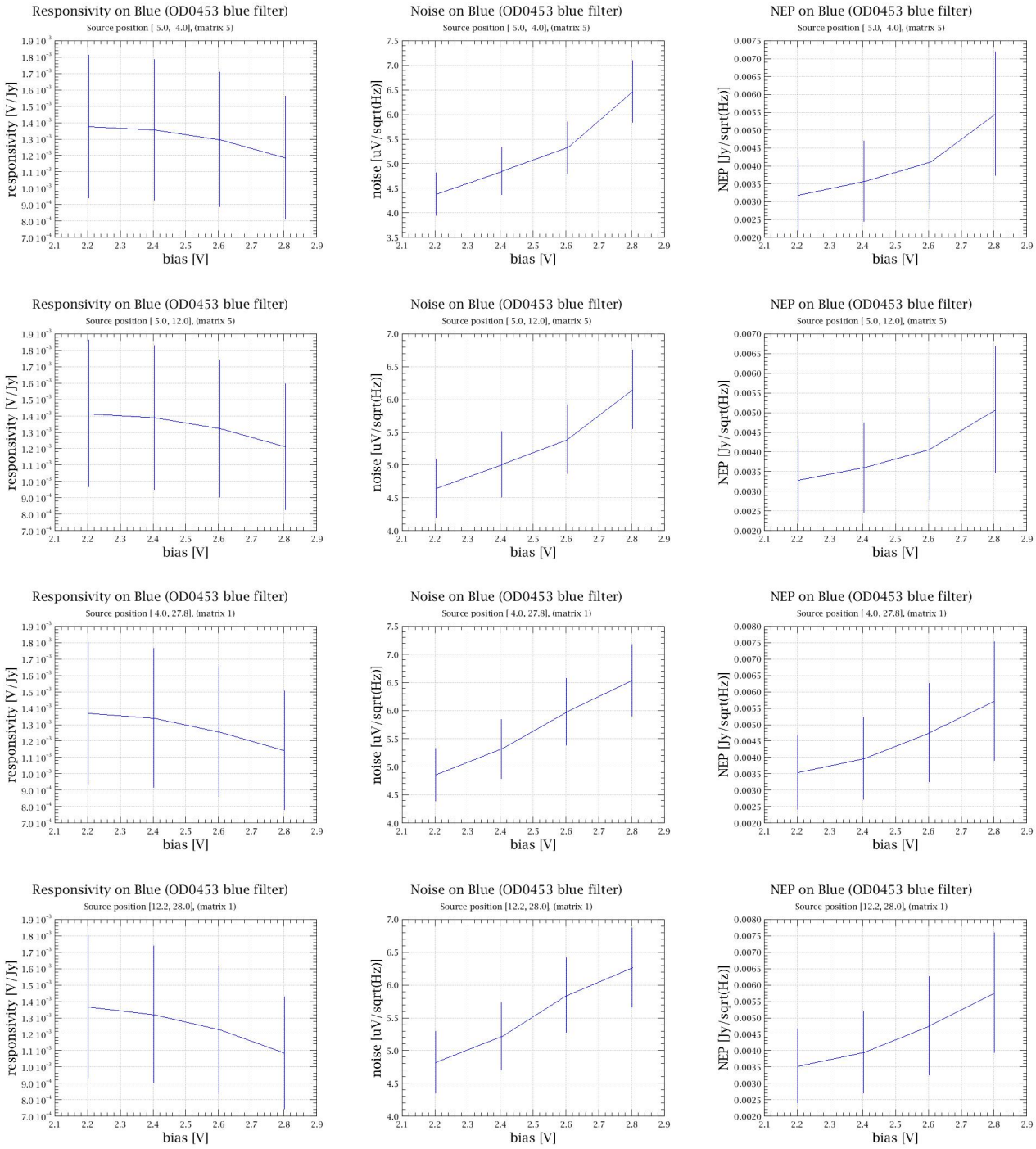

Figure 1: Examples (1) of responsivity, noise and NEP through blue filter as a function of bias.

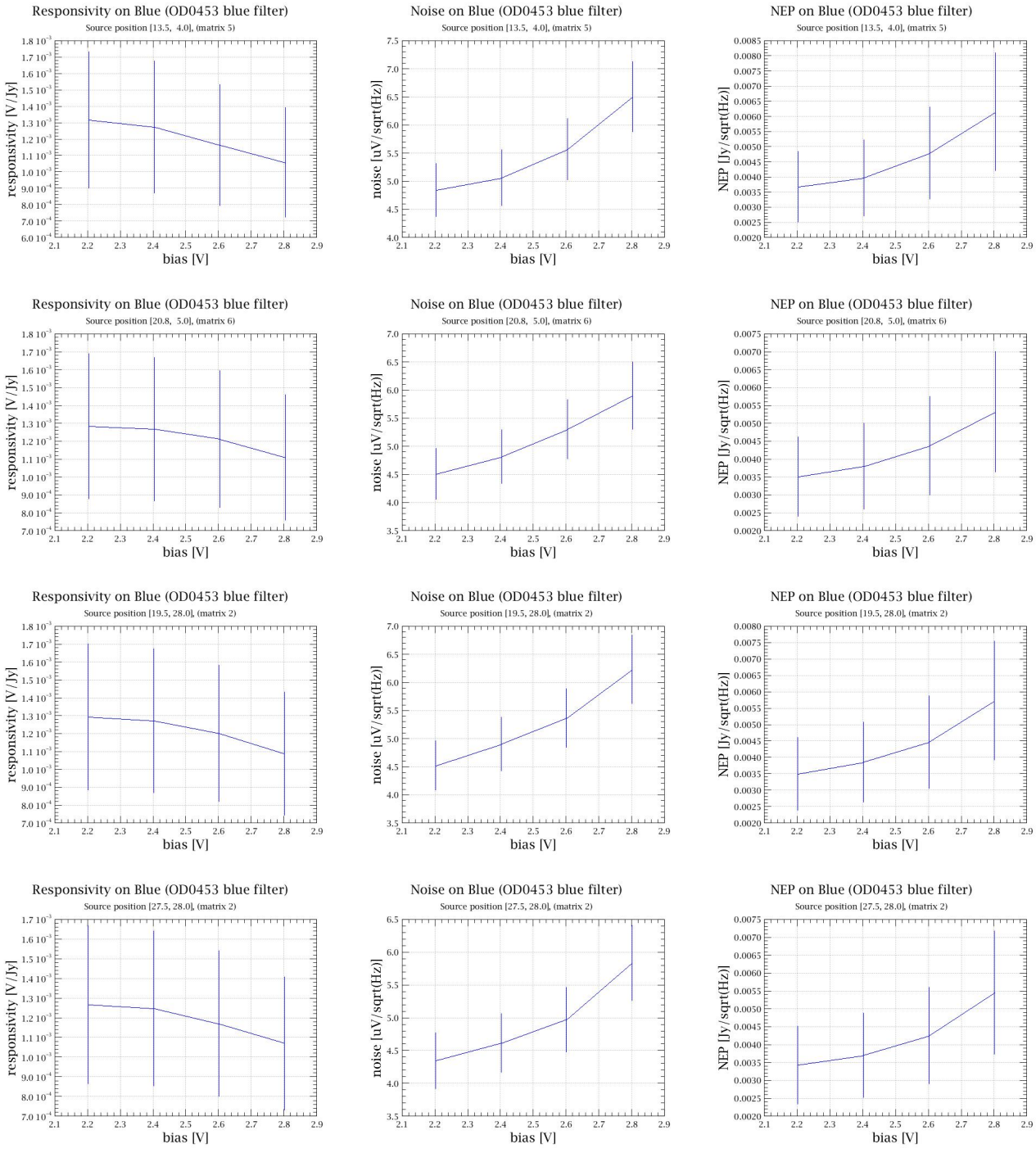

Figure 2: Examples (2) of responsivity, noise and NEP through blue filter as a function of bias.

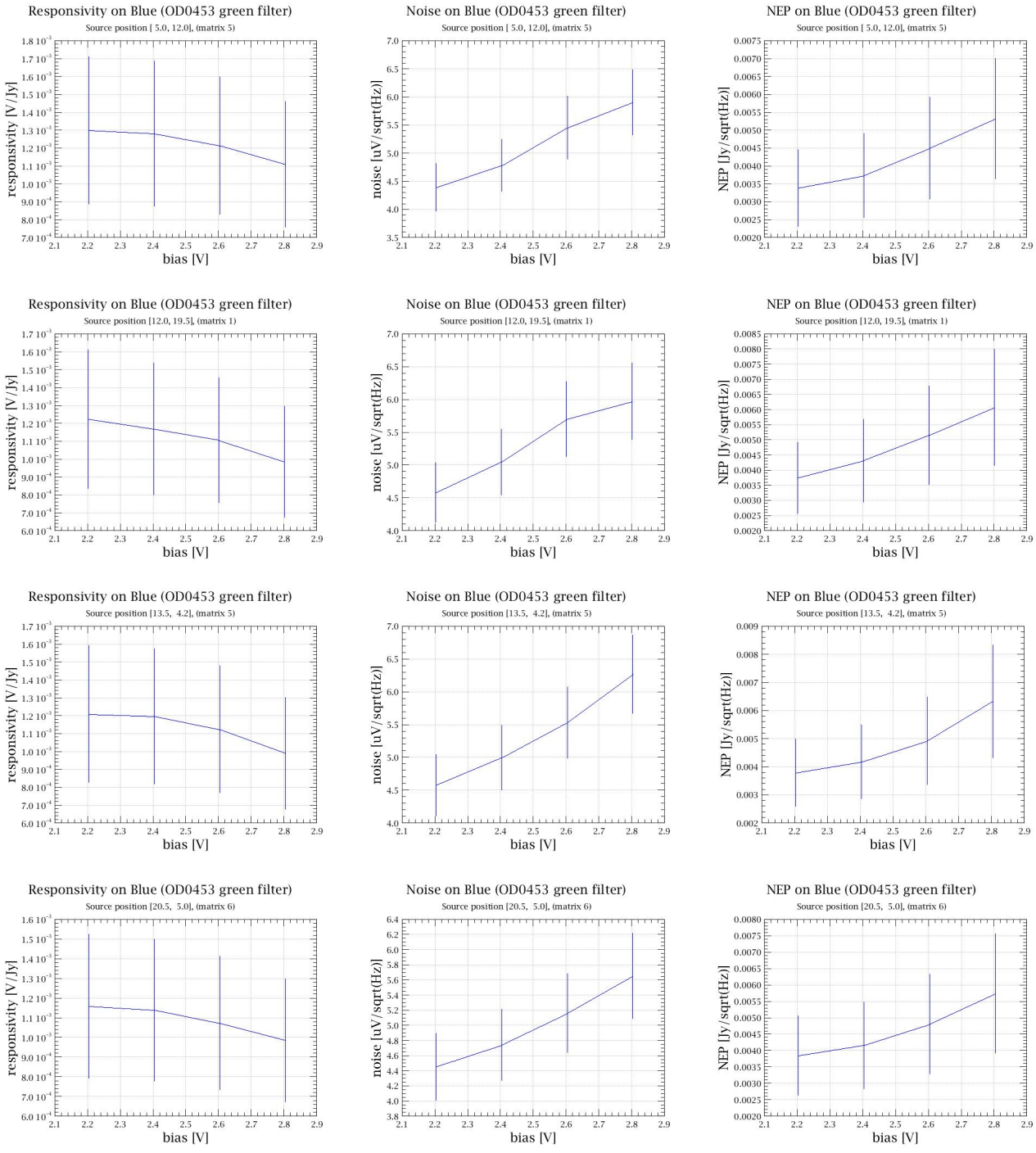

Figure 3: Examples (1) of responsivity, noise and NEP through green filter as a function of bias.

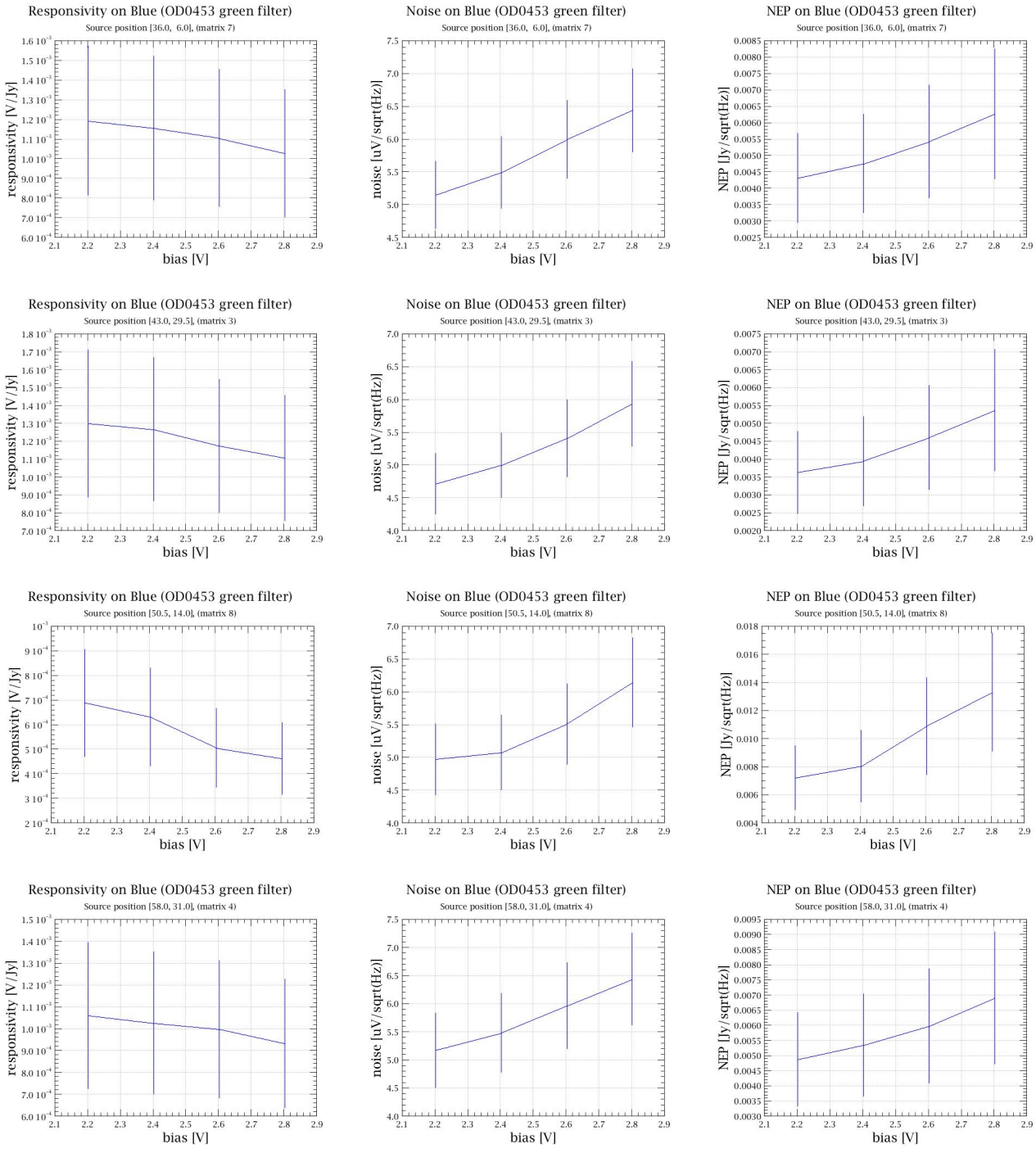

Figure 4: Examples (2) of responsivity, noise and NEP through green filter as a function of bias.

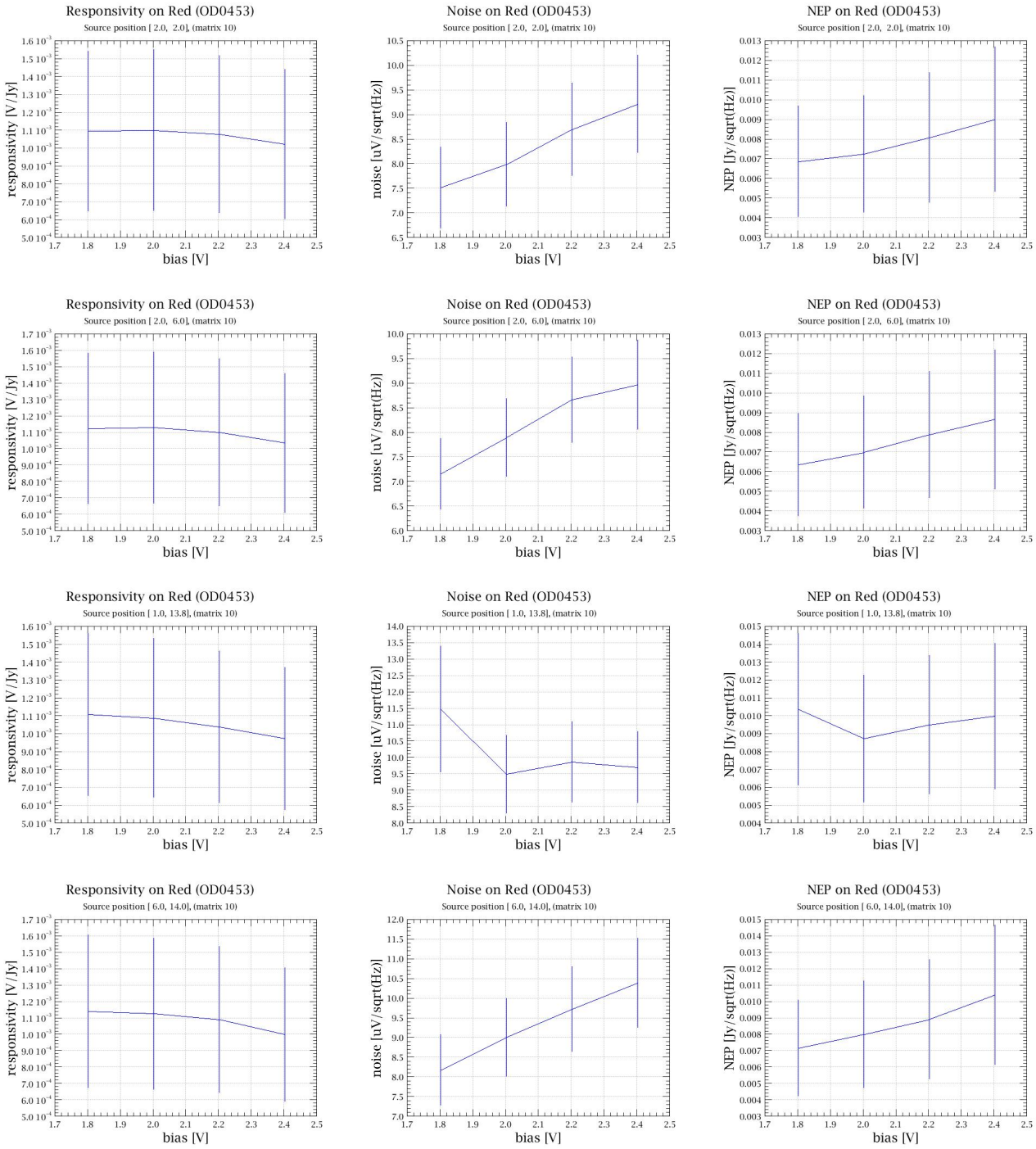

Figure 5: Examples (1) of responsivity, noise and NEP through red filter as a function of bias.

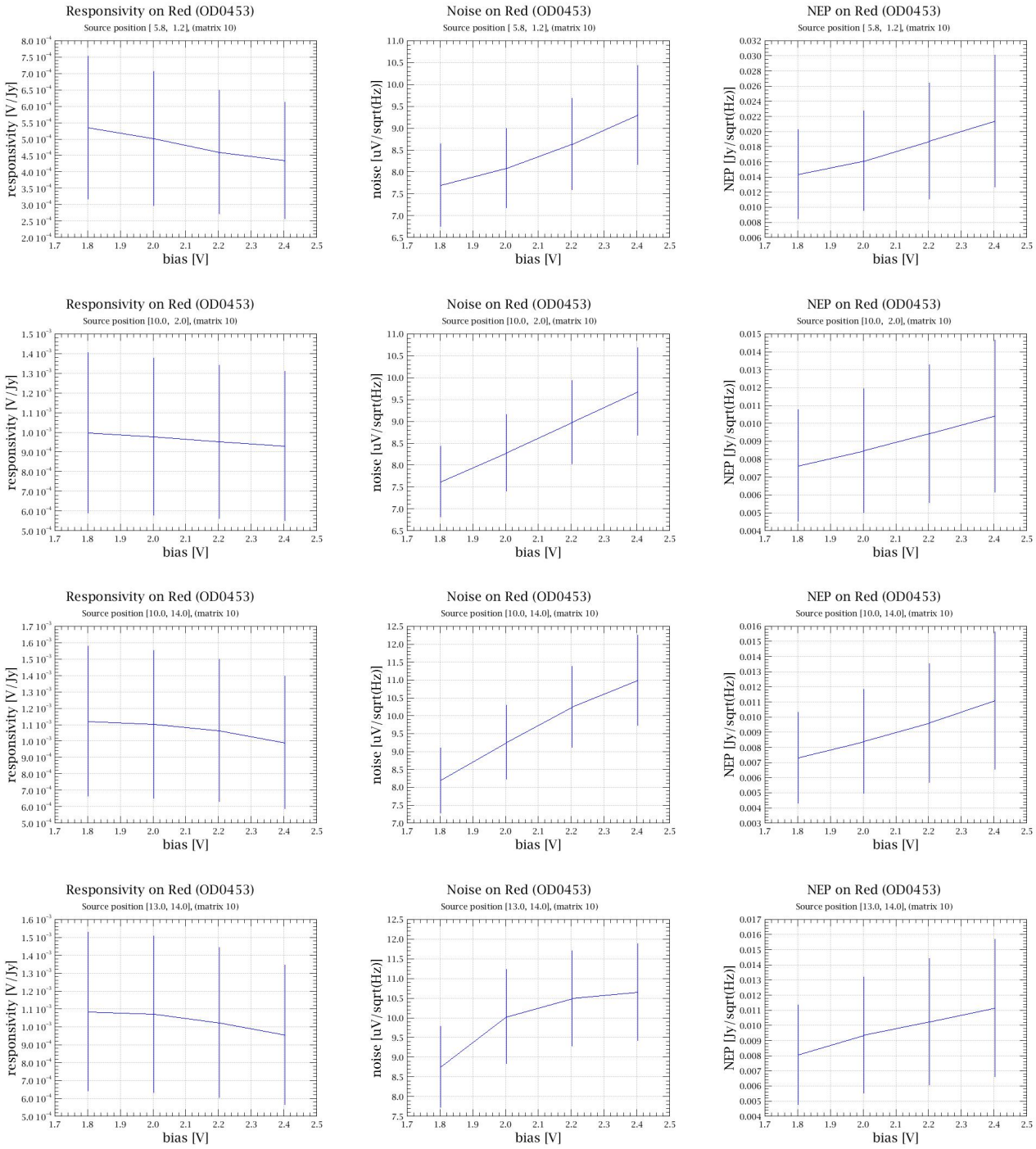

Figure 6: Examples (2) of responsivity, noise and NEP through red filter as a function of bias.

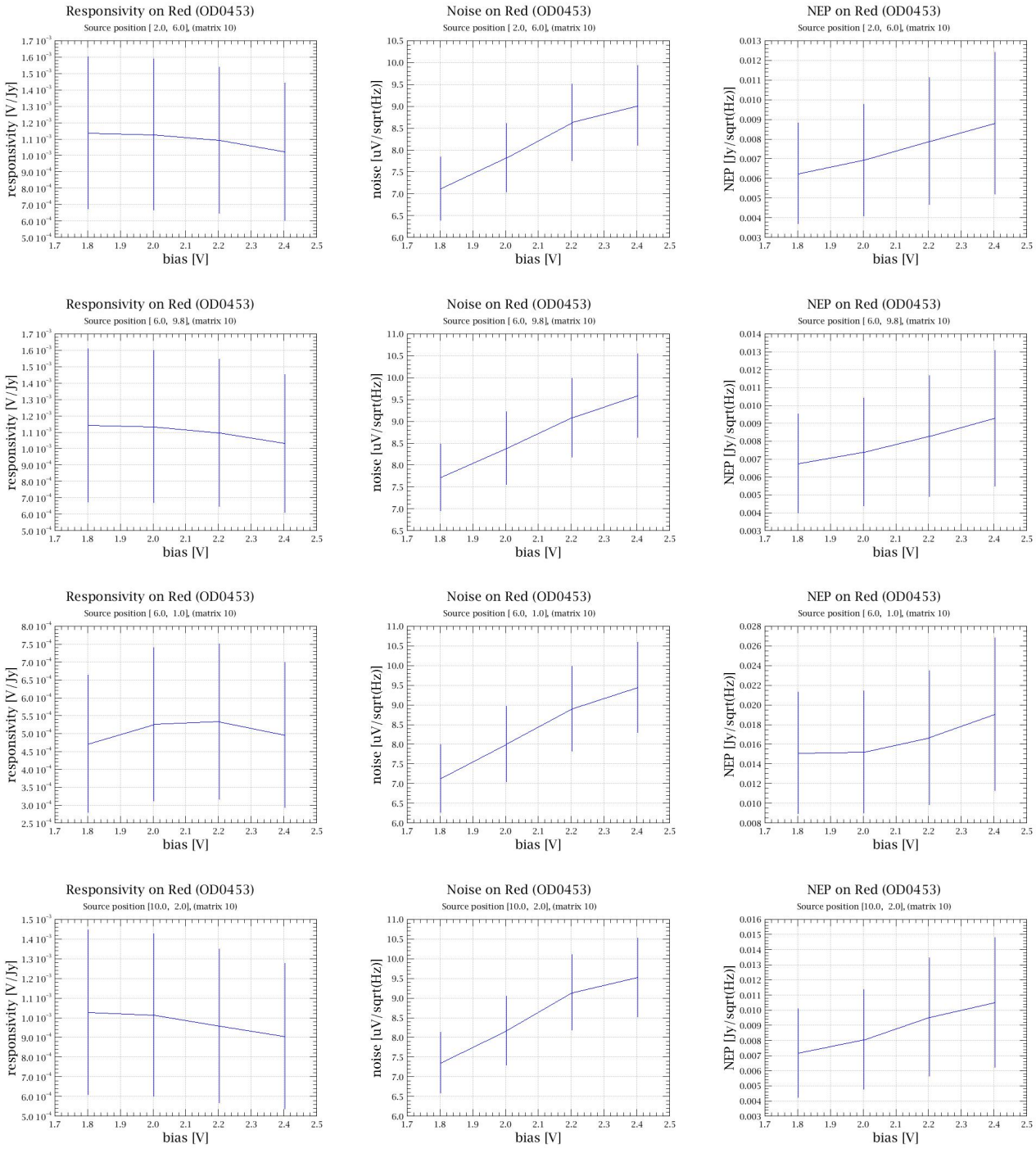

Figure 7: Examples (3) of responsivity, noise and NEP through red filter as a function of bias.

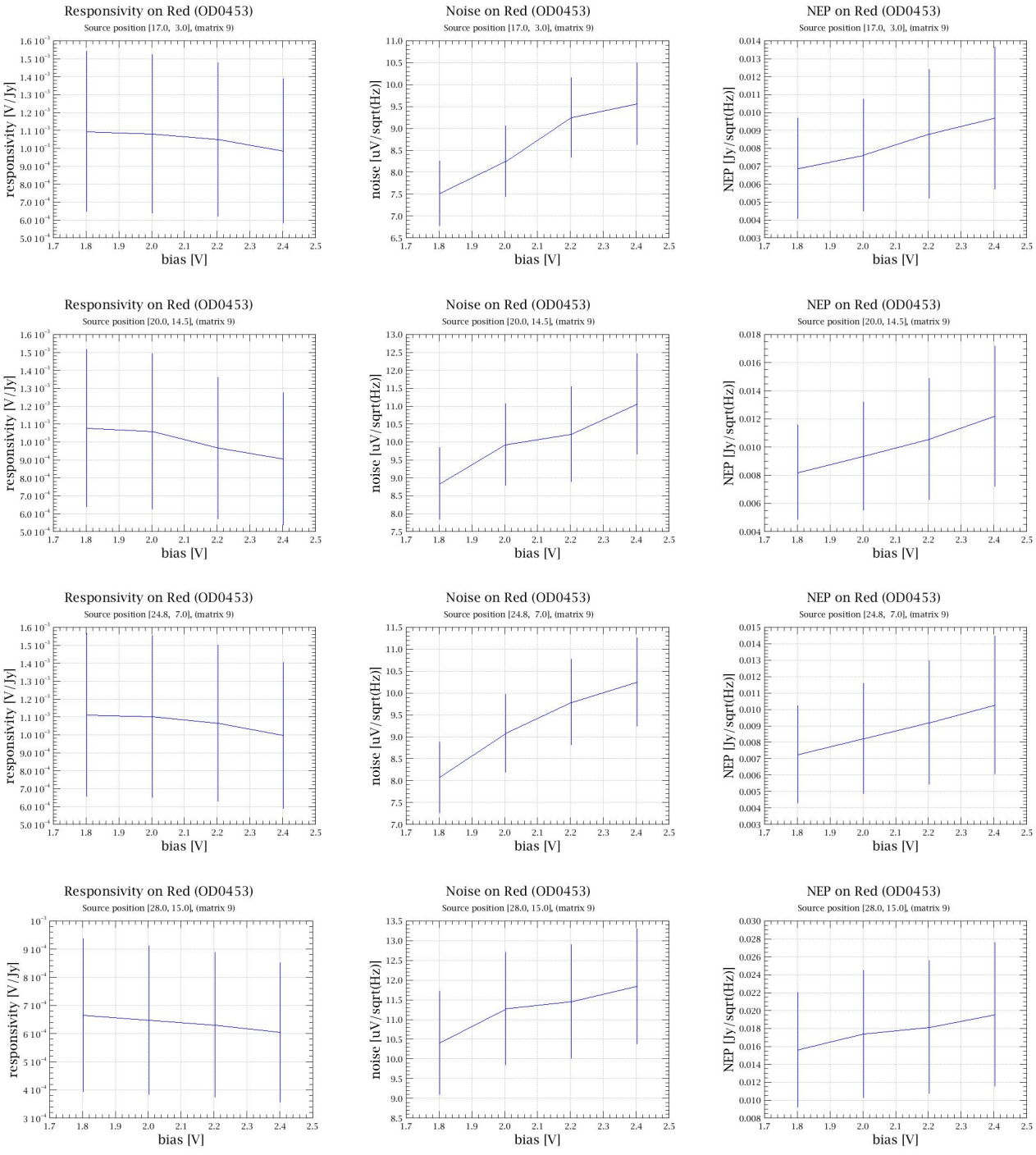

Figure 8: Examples (4) of responsivity, noise and NEP through red filter as a function of bias.

reduce_highGain.py
saveAllHighGainOD453Blue.py
plotHighGainOD453.py