



WFIRST: Data/Instrument Simulation Support at ISOC

Seppo Laine (Caltech/IPAC), Daniel Garrett (Cornell), Christian Delacroix (Princeton U.), Maxime Rizzo (GSFC), Rahul Patel and J. Davy Kirkpatrick (Caltech/IPAC), Dmitry Savransky (Cornell) and the ISOC Team

The Simulation Repository

As part of WFIRST Science Center preparations, the IPAC Science Operations Center (ISOC) maintains a repository of 1) WFIRST data and instrument simulations, 2) tools to facilitate scientific and performance feasibility studies, and 3) parameters summarizing the current design and predicted performance of the WFIRST telescope and instruments. The repository provides access to simulation code, tools and resulting analyses.

<https://wfirst.ipac.caltech.edu>

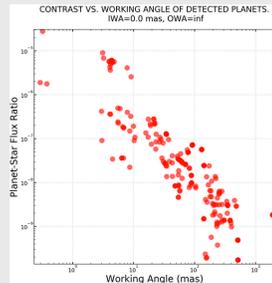
Current content and future development

In addition to the items highlighted below, the current content of the repository includes information on, e.g., models of the CGI pupil, simulations of exoplanet albedos and colors, observational brown dwarf spectra, microlensing event simulations, weak lensing galaxy simulations, and simulations of grism observations of high-redshift galaxies. We encourage those who are generating WFIRST simulations or writing tools for exoplanet observations with WFIRST to contact the ISOC team so that we can bring these to the attention of the scientific community as we prepare for the exciting science that will be enabled by WFIRST. For further information, please contact us at wfirst@ipac.caltech.edu.

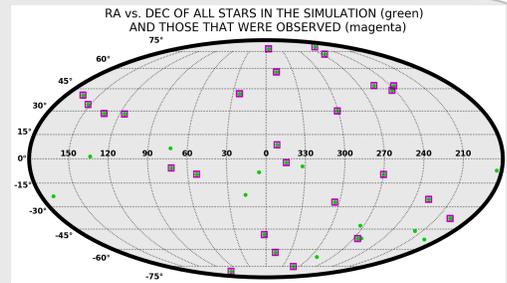
EXOSIMS: Exoplanet yield simulations for planning surveys with WFIRST/CGI (Dmitry Savransky, Daniel Garrett, Christian Delacroix)

Mission Parameters:	
Length of Mission	5.0 years
Portion of Mission	0.1667 fraction
Mission Extension	0.0 years
Start of Mission	60676.0 MJD
Star-to-Planet Contrast Limit	20.0 magnitudes
Settling Time	0.02 days
Minimum Completeness Inclusion	0.02

Screenshot of part of the EXOSIMS (Delacroix et al. 2016; see also posters 246.04 and 246.06) input GUI at ISOC. The user specifies input parameters, and the results are returned both as graphical output and a downloadable table.

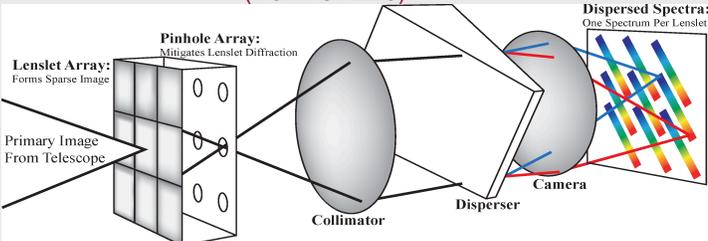


The flux contrast ratio of detected planets as a function of angular separation from star.

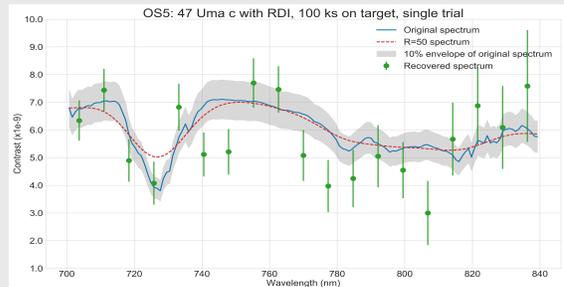


The location of stars used as input catalog into the simulation (small green dots), as well as those stars that were observed at any point in the simulation, under given constraints (open magenta squares).

CRISPY: CGI/Integral field spectral simulator for WFIRST (Maxime Rizzo)



Pre-WIETR simulations: Sketch of light propagation through the IFS. For more information, see Rizzo et al. (2017) and poster 148.34 at this meeting.



Pre-WIETR simulations: an extracted spectrum from an Uma 47 c observing scenario with ~ 27 hours of exposure time (Cahoy et al. 2010).



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