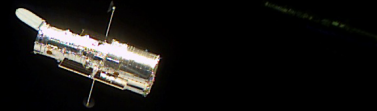




The HCV Explorer



Enhancing the Science Return of the Hubble Catalog of Variables

ESAC Science Data Centre

ESAC, 24th September 2019

ESA/STScI ASSOCIATE For Official Use



European Space Agency

The Hubble Catalog of Variables (HCV)

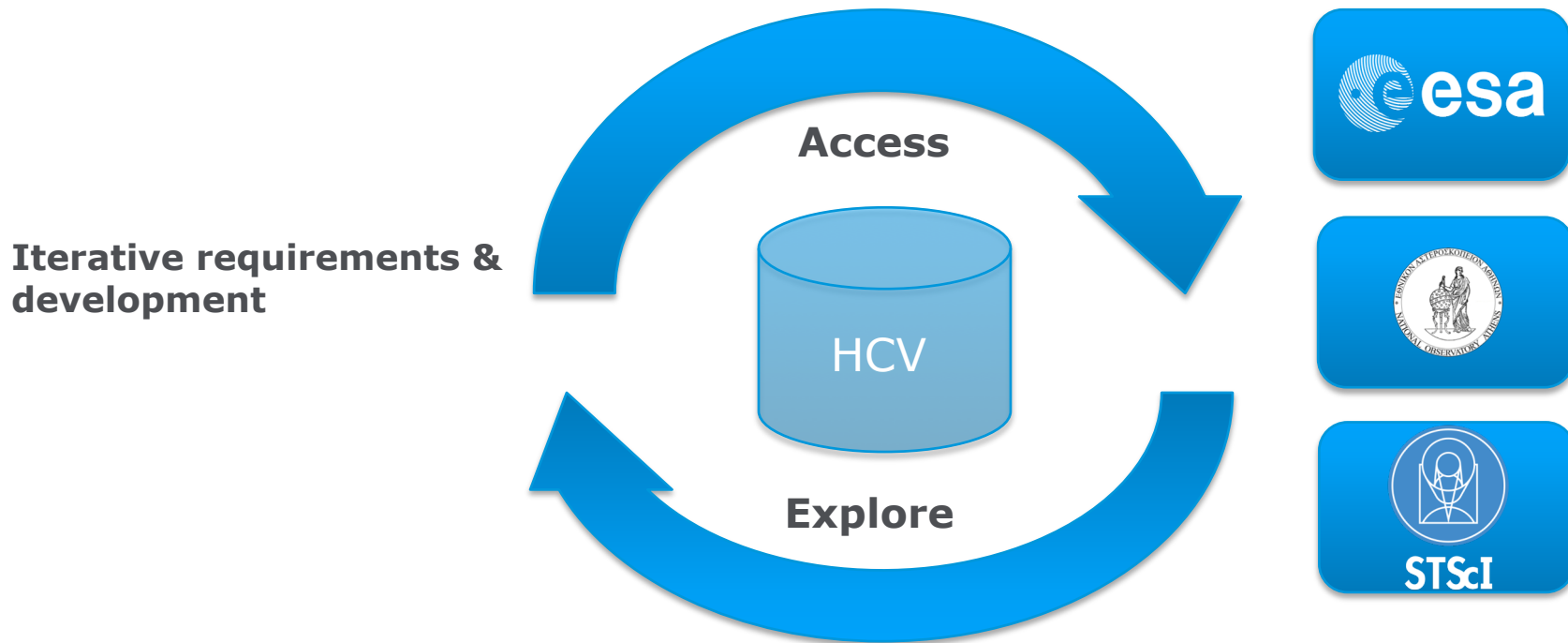


The Hubble Catalog of Variables (HCV):

- Developed over 4 years by team from NOA, led by Alceste Bonanos – ESA funded project in collaboration with STScI.
- HCV pipeline created using the Hubble Source Catalog (HSC) v3 (and HLA images for validation)
- HCV v1.0 released on 24th September 2019
- HCV is the deepest catalogue of variables available. Contains 84,428 candidate variables (out of 3.7 million HSC sources searched for variability), with $V \leq 27$ mag. For 11,115 sources variability is detected in more than 1 filter. Includes variables sources in Milky Way, nearby Galaxies, transients and AGN.
- Data points in light curves range from 5 to 120, time baselines range from under 1 day to over 15 years.

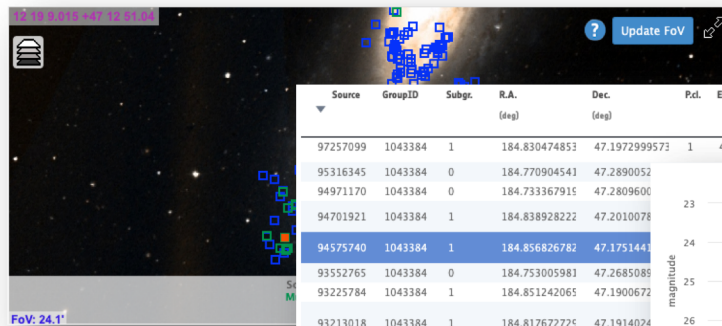
HCV Explorer tool definition & requirements

End 2018, ESDC were asked if we could develop an interface to the HCV

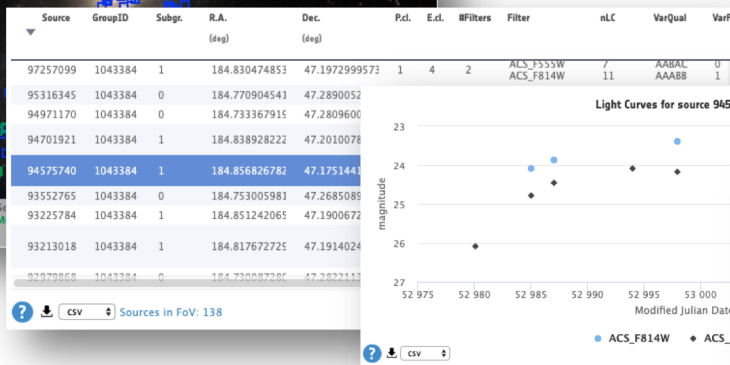


HCV Explorer

- **Web visualisation tool to explore the Hubble Catalog of Variables**
- Interactive and connected plotting of the HCV 1.0 catalog

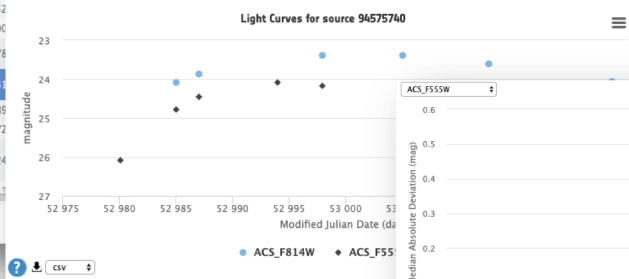


In the Sky

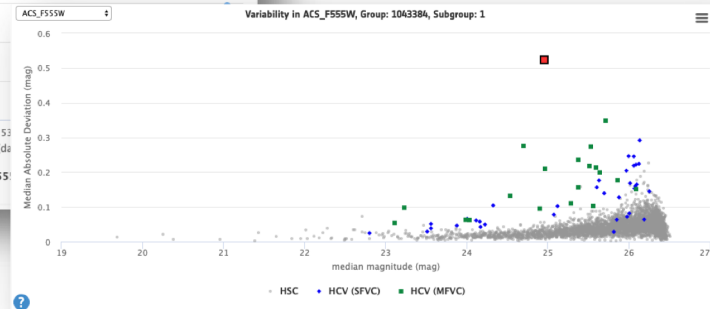


CSV Sources in FoV: 138

In table results

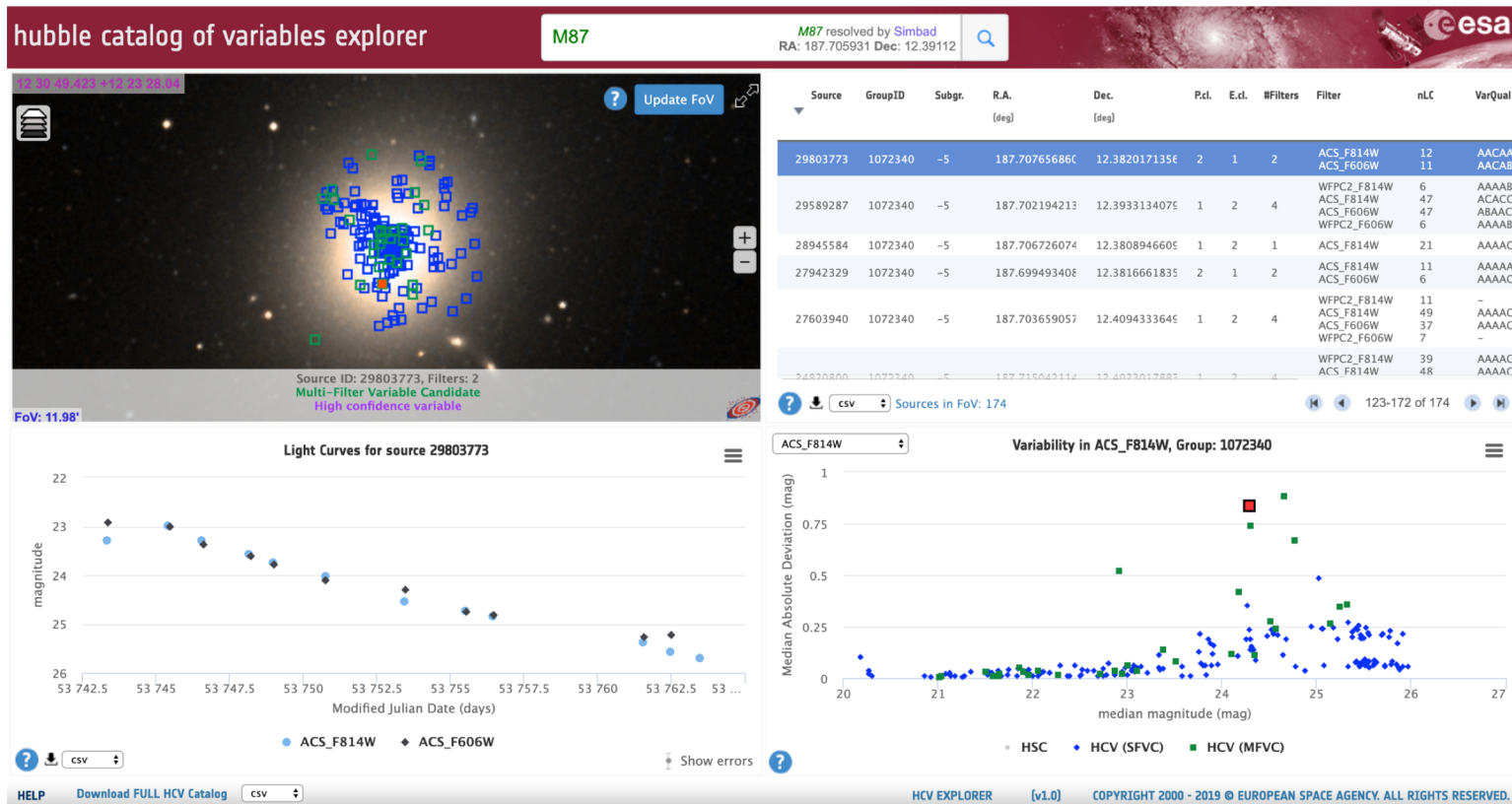


In light curve plots



In variability plots

HCV Explorer 1.0

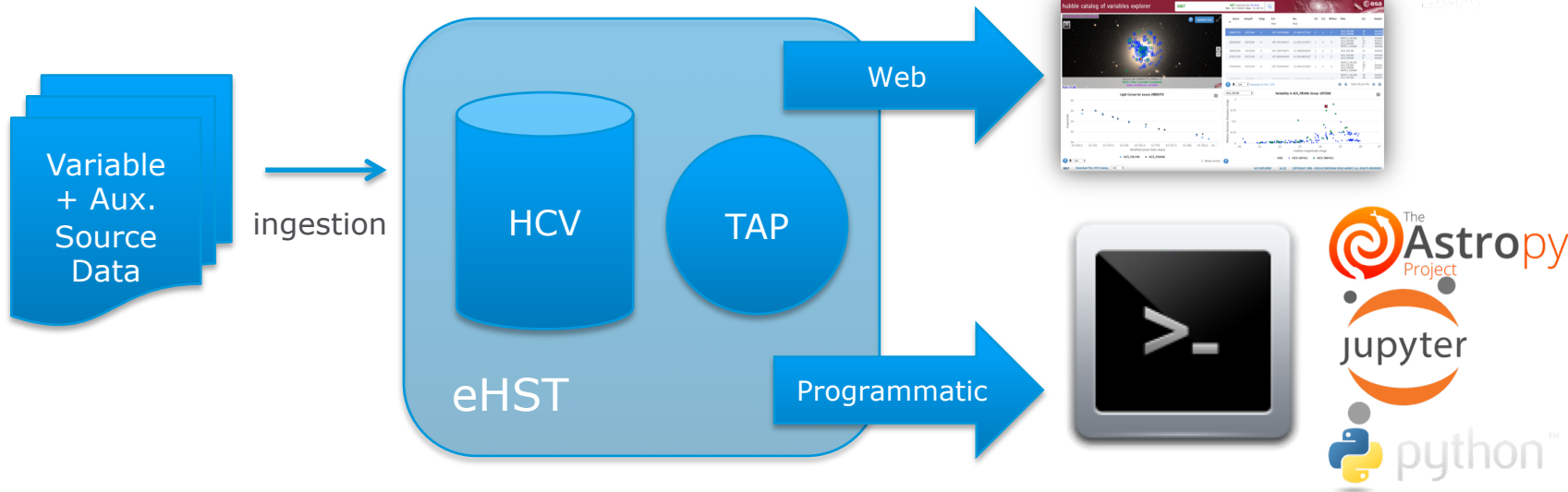


HCV Explorer 1.0



- Simple search
 - Target name / coordinates
- HCV 1.0 visualisation in Sky
- Results table with download functionalities
- Info on quality of selected candidate variable
- Interactive visualisation and plotting for light curves
- Advanced visualisation and plotting for HCV contents
- Help and documentation
- Jupyter Notebooks tutorial
- Direct access to bulk download of HCV 1.0

HCV Explorer tool architecture



- Technical implementation
 - **Web client:** Google Web Toolkit + Javascript, AladinLite + HiPS
 - **Backend:** JAVA – TAP server (metadata access service)
 - **Database:** PostgreSQL



HCV Explorer team

at ESAC

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ESAC HCV Release | 2019/09/24 | Slide 8

HCV Explorer 1.0 Demo

<http://archives.esac.esa.int/hcv-explorer>

Video: <https://youtu.be/22SGQIEGjIE>

Documentation:

<https://www.cosmos.esa.int/web/hst/hcv-help>