INASAN

WSO - UV

Field Camera Unit
Science case

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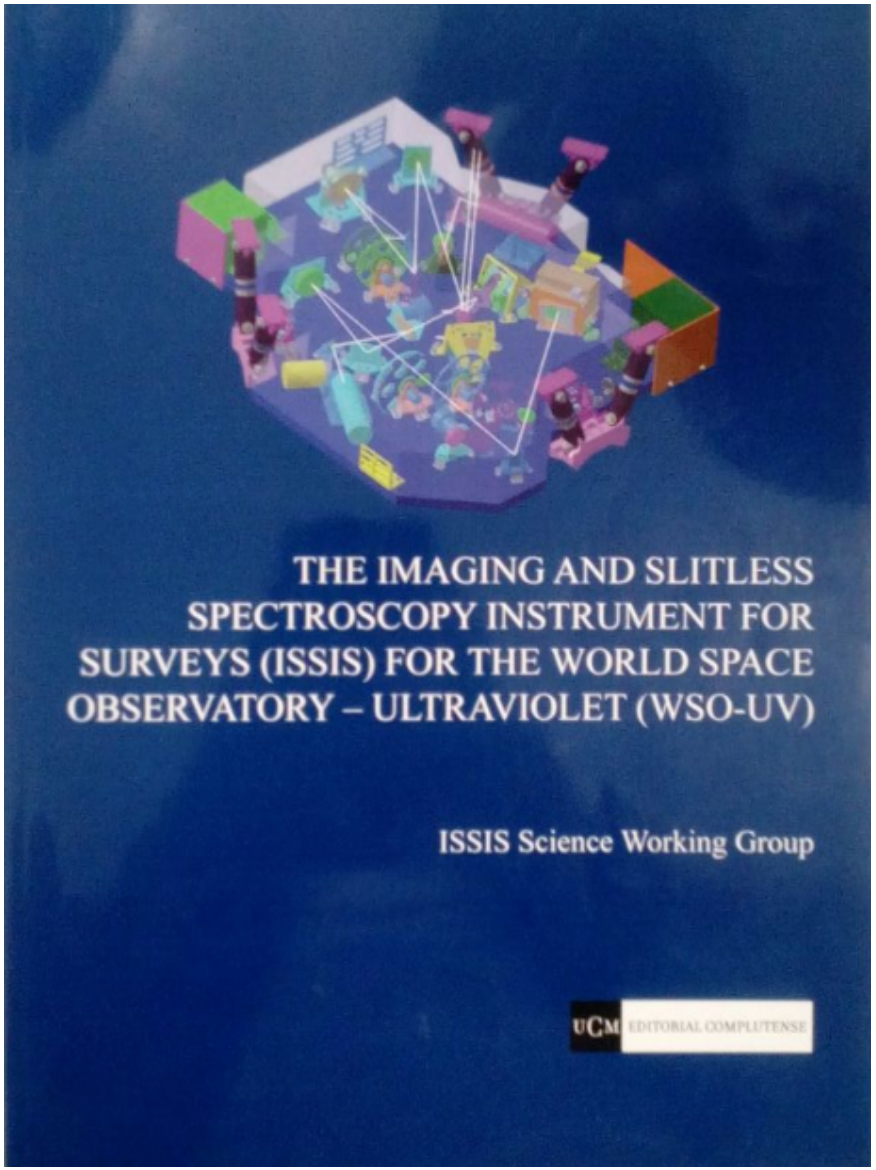
ISSIS's inheritance:



Features of the FCU, compared with peers:

Parameters	ISSIS	**Far-UV**	**Near-UV**	HST/ACS/SBC	HST/WFC3/UVIS
Detector type	MCP, analogue of UVIT (Spain)	**MCP**	**CCD**	MCP, MAMA	CCD
Spectral range, nm	115-310	**115-176**	**174-310 (115-1000)**	115-170	200–1000
Effective area, m^2	0.054	**0.068**	**0.27**	0.18	0.45
Field of view, arcsec×arcsec	70×75	**121×121**	**597×451**	34.59×30.8	162×162
GRASP (etendue), $deg^2 \times m^2$	1.5×10^{-5}	**6×10^{-5}**	**5.7×10^{-3}**	1.1×10^{-5}	9×10^{-4}
Scale, arcsec/pixel	0,035×0,038 telescope: 0.1	**0.08 (20μm)**	**0.146**	0.033×0.030 telescope: 0.1	0.0395
Number of filters	2x (5 + 2 neutral)	**Up to 10**	**Up to15**	6 + 2 prism	42+5

Possible scientific tasks:

Scientific tasks and requirements:	FUV:	NUV:
Gravitationally lensed QSOs in the UV	✓	✓
1: Field of view > = 2 arcmin	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Broad- and narrow-band imaging	Up to 10 slots	Up to 15 slots
Search for L-α emitters up to redshift Z=2	✓ +LSS	✓ +LSS
1: Wide field of view	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Broad- or medium-band imaging	Up to 10 slots	Up to 15 slots
4: Slitless spectroscopy (R=300)	+ (prism)	+ (prism)

✓ Scientific task could be solved

✓ Scientific task could be solved with big scientific output

✗ Scientific task could NOT be solved

597''×451''	Very good FCU's parameter for this task
0.146''	Enough to solve this scientific problem
-	NOT enough to solve this scientific problem

Possible scientific tasks:

Scientific tasks and requirements:	FUV:	NUV:
Reverberation mapping of AGN	✓	✓
1: Field of view, > = 2 arcmin	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Broad-band imaging	Up to 10 slots	Up to 15 slots
4: Slitless spectroscopy	+	+
Search for massive stars in the Local Group	✓	✓
1: Wide field of view	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Broad- and medium-band imaging	Up to 10 slots	Up to 15 slots
4: Slitless spectroscopy	+	+
5: High dynamic range	+	+
6: High sensitivity	+	+

Possible scientific tasks:

Scientific tasks and requirements:	FUV:	NUV:
σ Ori stars in the ultraviolet		
1: Wide field of view	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Broad- or medium-band imaging	Up to 10 slots	Up to 15 slots
4: Slitless spectroscopy	+ (prism)	+ (prism)
Protostellar Jets		
1: Wide field of view	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Slitless spectroscopy, R ~ 500	+ (prism)	+ (prism)

Possible scientific tasks:

Scientific tasks and requirements:	FUV:	NUV:
Study of planetary nebulae		
1: Wide field of view	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Broad- or medium-band imaging	Up to 10 slots	Up to 15 slots
4: Slitless spectroscopy, R~500	+	+
Resolving faint sources close to bright objects		
1: Wide field of view	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Coronagraphic mode	?	?
4: Medium band filters	Up to 10 slots	Up to 15 slots
5: High dynamic range (10^4-10^5)	-	+

Possible scientific tasks:

Scientific tasks and requirements:	FUV:	NUV:
Study of extremely short timescale variable sources		
1: Broad- or medium-band imaging	Up to 10 slots	Up to 15 slots
2: Slitless spectroscopy	+	+
3: Special operational modes: readout velocity as fast as 40 milliseconds	+	-
SN behavior in the UV		
1: Broad- and medium-band imaging	Up to 10 slots	Up to 15 slots

Possible scientific tasks:

Scientific tasks and requirements:	FUV:	NUV:
Gamma ray bursts and sources of gravitational waves in UV (target of opportunity)	✓	✓
1: Sub-arcsec spatial resolution	0.08''	0.146''
2: Middle- or narrow-band imaging	Up to 10 slots	Up to 15 slots
Asteroseismology	✓	✓
1. Sub-arcsec spatial resolution	0.08''	0.146''
2 High precision photometry (amplitude = 1mmag)	-	+
The origin of the UV radiation in elliptical galaxies	✓	✓
1: Wide field of view	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Middle- and broad-band imaging	Up to 10 slots	Up to 15 slots
4: Slitless spectroscopy	+	+

Possible scientific tasks:

Scientific tasks and requirements:	FUV:	NUV:
Star formation in nearby dwarf galaxies	✓	✓
1. Wide field of view, > 5 arcmin	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Middle- and broad-band imaging	Up to 10 slots	Up to 15 slots
Star formation in spiral galaxies	✓	✓
1: Wide field of view	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Middle- and broad-band imaging	Up to 10 slots	Up to 15 slots
Stellar magnetic activity	✓	✓
1: Wide field of view, > 5 arcmin	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Middle- or narrow-band imaging	Up to 10 slots	Up to 15 slots
4: Slitless spectroscopy, R>300	+	+

Possible scientific tasks:

Scientific tasks and requirements:	FUV:	NUV:
The Galactic globular clusters and variables	✓	✓
1: Wide field of view	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Middle- or narrow-band imaging	Up to 10 slots	Up to 15 slots
Ultraviolet in (exo)planetary atmospheres	✓	✓
1: Middle- or broad-band imaging	Up to 10 slots	Up to 15 slots
2: High precision photometry	-	+
Solar system (comets, aurorae)	✓	✓
1: Wide field of view	121''×121''	597''×451''
2: Sub-arcsec spatial resolution	0.08''	0.146''
3: Middle- or narrow-band imaging	Up to 10 slots	Up to 15 slots

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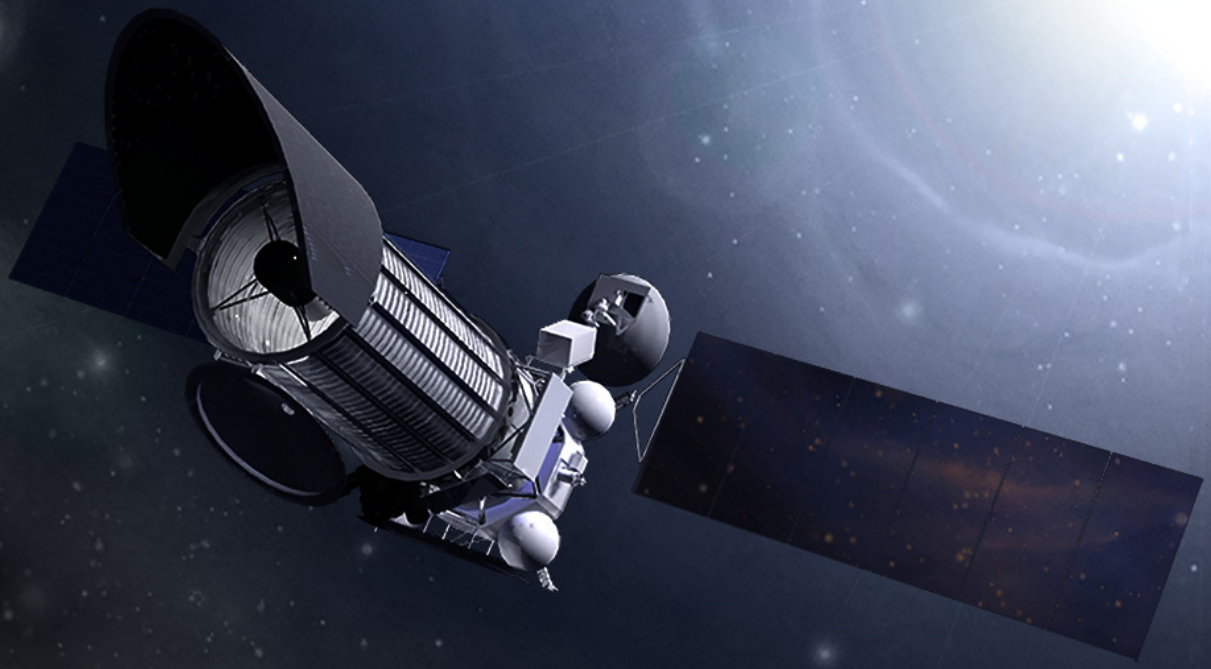
WSO-UV

World Space Observatory – Ultraviolet



Thank you for attention!