



El Escorial, May 28, 2007
"Space Astronomy: The UV window to the Universe"

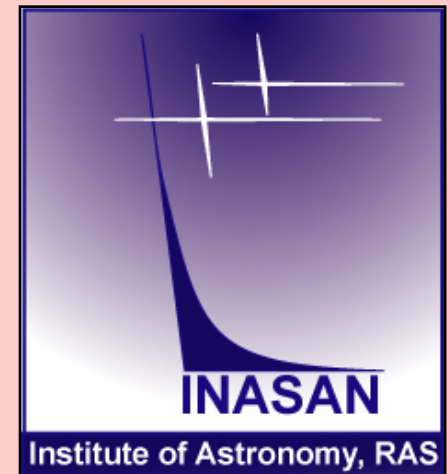
The WSO-UV Project

general information

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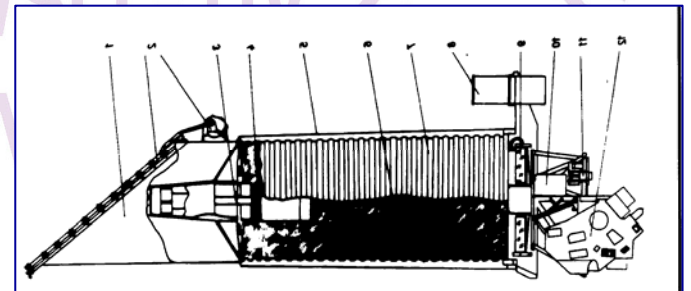
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Astron



A successful UV space observatory (USSR) with 80 cm aperture telescope and spectrometer (1983-1989)



T-170 Telescope in assembly room of the Lavochkin Association (Moscow)





The WSO/UV Implementation Committee (WIC)

Argentina	(J. Sahade)	
Baltic-Nordic Countries	P. Hakala	
China*	F.-Z. Cheng	
Italy *	I. Pagano	
France	M. Dennefeld	
Germany*	K.Werner, N. Kappelmann	
India	J. Murthy	
Israel	N. Brosch	
Mexico	L.Binette	
The Netherlands	K. A. van der Hucht	
Poland	A.Niedzelsky	
Russia*	B.Shustov	chair
South Africa	P. Martinez	
<u>Spain*</u>	<u>A.I. Gomez de Castro</u>	
UK	M. Barstow	
Ukraine *	N. Steshenko	
UN	H. Haubold	

* - actively participating countries



UCM, 2004

NUVA Meeting

On the WSO/UV core program

- I. The Cosmic Web
- II. Activity on stars and compact objects
- III. The early evolution of the Sun and its interaction with the young planetary disk
- IV. Atmospheres of exoplanets

WSO/UV mission model

Telescope: T-170M, Russia.

1.7 m diameter, primary λ range 110 - 340 nm,

Spectrographs:

UVES, VUVES, $R \approx 5-6 \times 10^4$; Germany,

LSS, $R \approx 2500$, China with cooperation (UK, Germany, France, Ukraine,...).

Imaging: FCU, Italy

Primary λ range 110 - 340 nm, 2 UV Imagers: one for max. spatial resolution (< 0.1 arcsec); one for max. sensitivity; and one imager for visual domain.

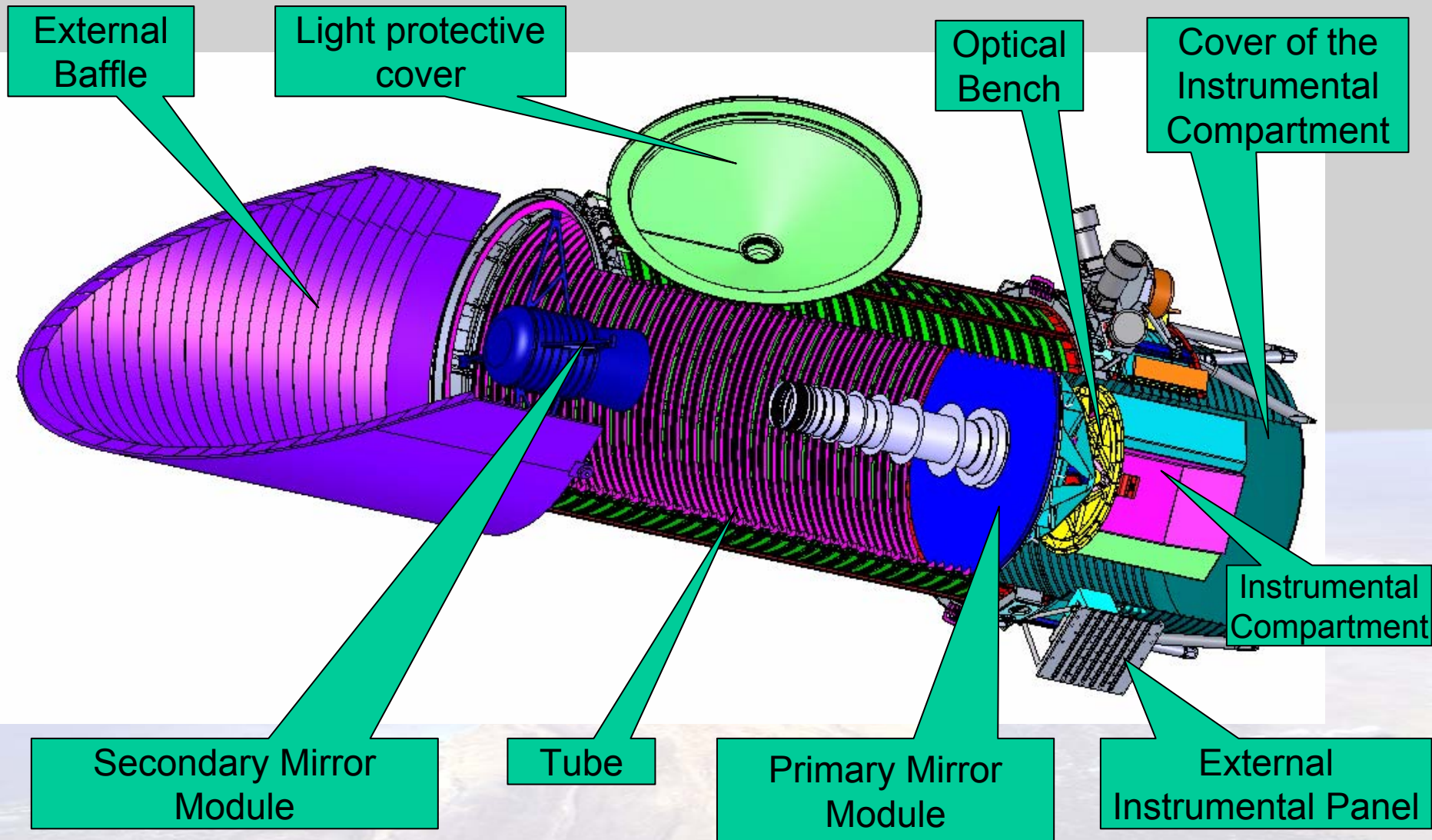
Platform: “Navigator”, Russia

Orbit: geosynchronous one with $i=51.4^\circ$ is considered as working orbit.

Launcher, launch: “ZENIT 2SB”, Russia

Ground Segment: Russia, Spain (contributions from Italy, China, Ukraine, South Africa ... are being considered).

Configuration of the T-170M Telescope



The T-170M telescope

Optical system	Ritchey – Chrétien aplanat
Aperture diameter	1700 mm
Telescope f-number	10.0
Field angular diameter	0.50° (300mm diameter)
Wavelengths range	100 – 350 nm (+visible)
Primary wavelength	200 nm
Mass	1570 kg
Optical quality	Diffraction optics at the center of FOV

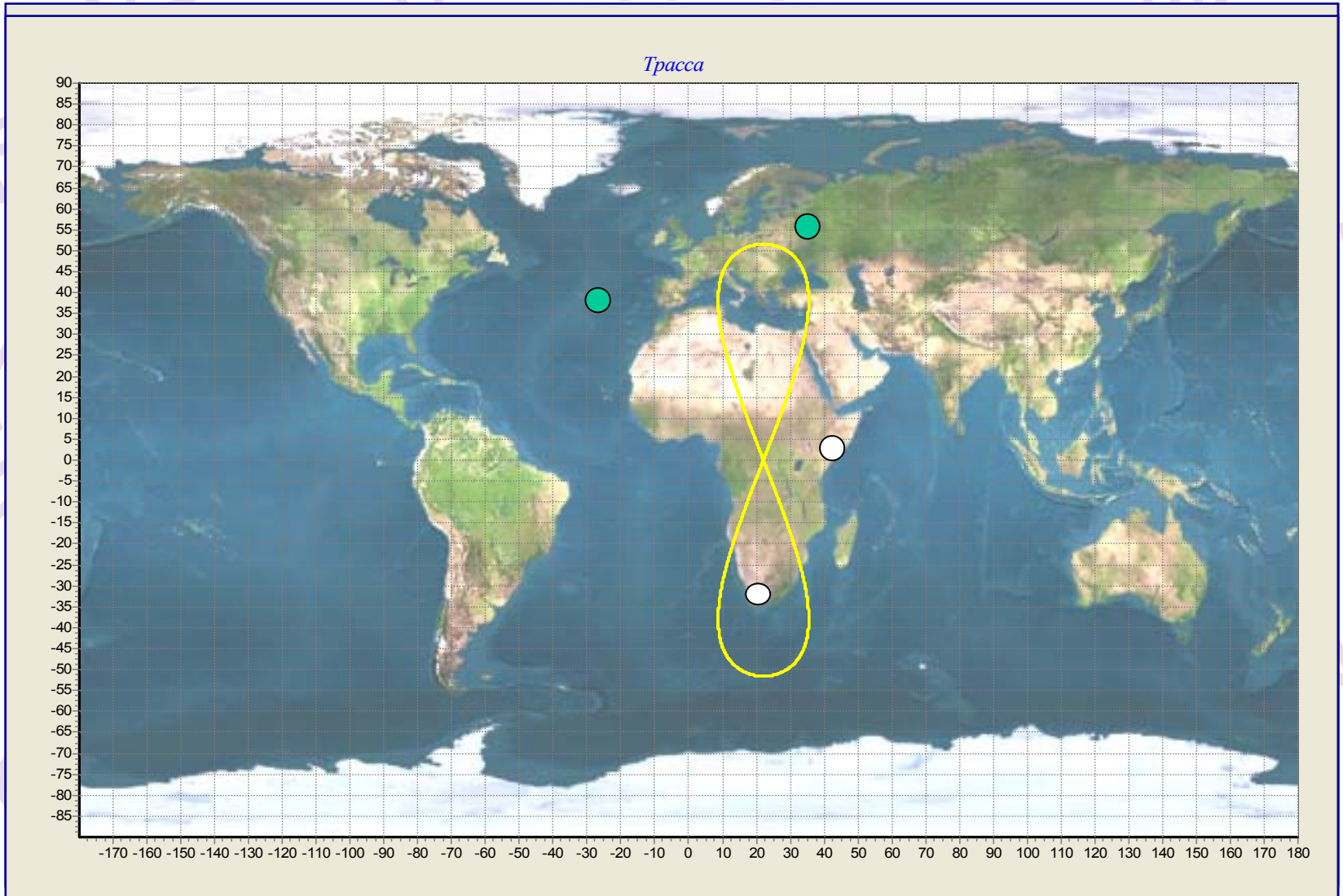
Spectrographs

Spectrograph	Range (nm)	Resolution
UVES	174-310	50000
VUVES	102-172	55000
LSS	102-310	2500

Field cameras

Camera	Range (nm)	Scale (arcsec/px)	FOV (arcmin ²)
FUV	115 -190	0.20	6.6 x 6.6
NUV	150-280	0.03	1.0 x 1.0
OC	250-700	0.07	4.6 x 4.6

WSO/UV orbit (a variant of geosynchronous orbit, $i=51.8^\circ$)



WSO/UV in Russia

- @ WSO/UV (also local name Spectrum-UV is used) Project is considered by Roscosmos and by the RAS as one of the key projects in space science program.
 - @ The project is included in the Federal Space Program of Russia for 2006-2015. Launch is scheduled for year 2010.
 - @ Funding is realistic though tight.
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- @ Telescope T-170M is being designed/manufactured. Lack of information on science instrumentation slows down the progress.
 - @ Platform “Navigator” is designed and mock-up are under tests.
 - @ GS (Russian centers) are under design.

WSO/UV in the world

China

CNSA and CAS decided to participate in LSS (as responsible partner for the LSS) and to consider participation in GS. An agreement China-Russia is under preparation.

WSO/UV in the world

(ctd.)

Germany

DLR is waiting for progress with other instruments.
HIRDES Phase B1 is successfully completed in 2006.
The result is
“Instrument Interface Control Document”: - by
Kayser-Threde Co.).

WSO/UV in the world

(ctd.)

Italy

Decision of ASI to participate in the Project is appeared in 2006. The contract between ASI and FCU consortium in Italy is signed. An agreement China-Russia is under preparation.

WSO/UV in the world

(ctd.)

Spain

Agreement was be signed by heads of Roscosmos and CDTI in March 2007.

Spain participates in GS.

WSO/UV in the world

(ctd.)

Ukraine

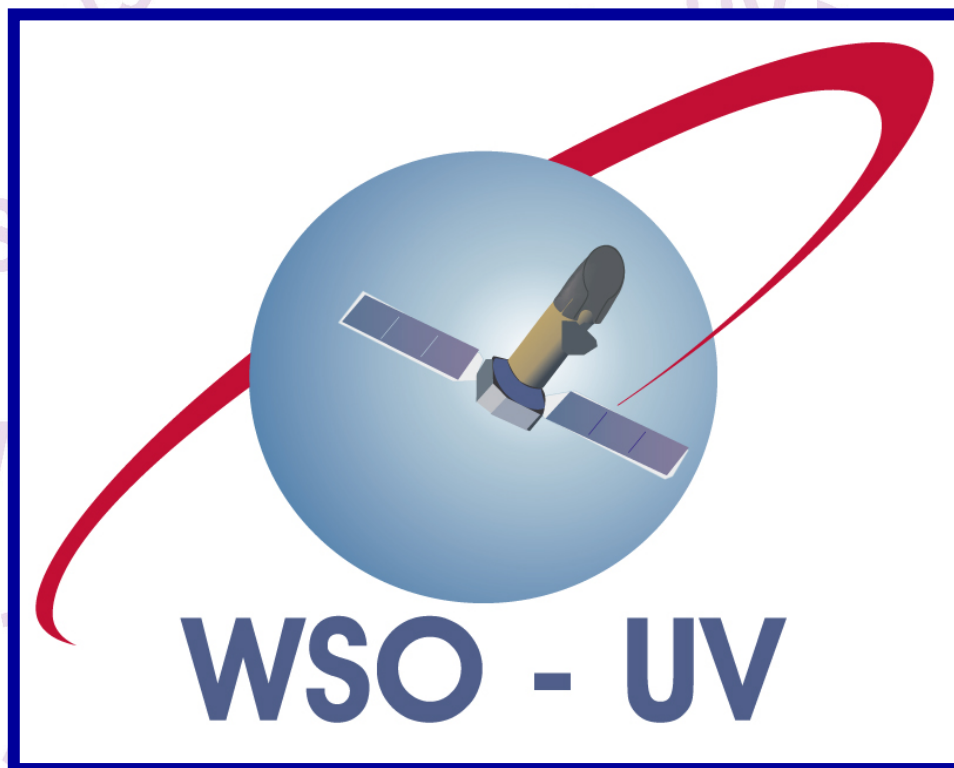
In September 2006 heads of CrAO confirmed their major contribution - mirror coatings and verification of optical system.

Republic of South Africa

During the visit of Russia President Mr. Putin authorities of the RSA confirmed their interest and willingness to participate in GS for Russian space program including WSO/UV.

Israel, India, Mexico

Permanently express interest in the Project.



<http://wso.inasan.ru>