WORLD SPACE OBSERVATORY – ULTRAVIOLET

SCIENCE POLICY – CORE PROGRAM CALL, JUNE 18TH 2018

1. WSO-UV SCIENTIFIC PROGRAMS

The WSO-UV is a multipurpose observatory consisting of a 1.7 m-aperture telescope and instrumentation for high-resolution spectroscopy, long-slit low-dispersion spectroscopy, and deep ultraviolet (UV) and optical imaging. The WSO-UV mission will last for five years with a planned extension of five years more. An updated description of the project status and the instrumentation can be found in the WSO-UV Handbook.

WSO-UV will work in observatory mode and provide access to the UV range to the international scientific community through the *Open Program* of observations. Regular Announcements of Opportunity will be made soliciting applications from international teams.

WSO-UV design has been optimized to address the key scientific objectives of the mission, namely,

1. The study of galaxy formation and the chemical evolution of the Universe, covering the last 80% of its lifetime ($0< z < 2$).
2. The measurement of the properties of diffuse matter in the Universe and its distribution in galactic haloes.
3. The formation and evolution of the Milky Way.
4. The role of discs in astronomical engines.
5. Exoplanetary research. The chemical composition and properties of the atmospheres of giant extrasolar planets.
6. The study of astrochemical processes in UV irradiated environments.

These objectives will be implemented through the *Core Program* of WSO-UV. Specific calls will be open to scientists in the Russia and Spain to propose *Key Projects* in these research lines that will become the actual manifestation of Core Program.

Moreover, there will be *National Programs* in Russia and Spain that guarantee a fraction of the observing time to the countries involved in the development of WSO-UV.

Proposals to all these programs will be submitted through the Remote Proposal System (RPS) to the Observatory for evaluation of their scientific excellence and technical feasibility.

The amount of observing time granted to each program by the WSO-UV Science Supervision Committee is determined prior to the Call for Applications and allotted at the Time Allocation Committee (TAC) that generates the list of approved proposals.

Additional programs are:

- The *Director Discretionary Time Program* that represents a small fraction of the observatory time and will be managed by the director of the WSO-UV observatory to allow a rapid response to unexpected important astronomical events or for other scientific purposes.
- The *Calibration Program* that includes specific observations and measurements to calibrate and ensure the optimal performance of the WSO-UV.
- The *Guaranteed Time Program* for the Instrument Teams.

This document addresses only the regulations that apply to the "Core Program" call, to be issued several years before the launch to guarantee that the best proposals are selected and that possible preparatory observations are carried out on due time before launch.

2. CORE PROGRAM PROPOSALS: ELIGIBILITY

Research projects submitted to the *Core Program (CP)* should lead to a significant advance in the understanding of an important area of astronomy **within the master lines defined for the CP.** Excellent proposals that cannot be ascribed to any of these fields are also welcome though they may be awarded lower priority.

Research projects submitted to the *CP* must use the unique capabilities of the WSO-UV to address scientific questions with a comprehensive approach that is not possible with smaller time allocations. Selection of a Research Proposal for implementation within the core program does not rule out the acceptance of smaller projects to do similar science, however duplications must be justified. All the proposals accepted within the *CP* are large programs, **requiring at least 100 hours of observation**.

The proposed program must produce **a lasting value contribution to the WSO-UV Science Archive** and it is **expected to generate High Level Science Data Products** (HLSD products) to be shared with the astronomical community at large.

The scientific results from *CP* proposals **should not depend on the availability of further data** or coordinated observations with other facilities. Preparatory observations are welcome.

To be eligible, teams need to fulfill the following conditions:

- The Principal Investigator must have a permanent position in a Scientific Institution (University, Research Institute, Observatory) belonging to the countries members of the WSO-UV consortium.
- The teams must describe the HLSD products that will result from the research project in the proposal. Also, the management plan must be submitted at the time of the application including a detailed description of the availability of the resources (manpower, expertise, hardware, and software) needed to complete the scientific program and the generation of the final HLSD products.

Multinational teams involving researchers from the WSO-UV consortium countries will be awarded the highest priority.

3. CORE PROGRAM DATA RIGHTS

CP **observations will be made public 1 year after the observing program is concluded**, together with the HLSDPs. A research program is concluded at the time the last observation of the program is successfully stored in the Mission Archive.

4. WSO-UV CORE PROGRAM TEAM (WCPT)

The WSO-UV *CP* team (WCPT) has a role similar to that of an *Audit Group* and it is inspired in the surveys teams implemented by the European Southern Observatory. WCPT supports the teams during their observations, monitors the progress of the programs, and perform a data quality assessment of the HLSD products to be included in the WSO-UV archive, based on the quality control parameters and technical reports provided by the CP Teams. WCPT will be composed by 4/5 scientists, nominated after the CP call is issued.

WCPT responsibilities will be the following:

- Reviewing the CP Management Plan in all its dimensions. To assess in detail the resources available in the CP Teams (manpower, expertise, hardware, and software), and whether they are adequate to the demands of their proposal. The WCPT also evaluates the proposed data (HLSD) products to be delivered to WSO-UV and whether they are suitable to fulfil the goal of serving a broad community.

- Taking part in the science verification of WSO-UV and collaborating to finalize Phase II tools

- Participation to the definition of the WSO-UV standard calibration plan, as well as the configuration of the Quality Control (QC) parameters in the pipeline.

- Support the PI's to optimize the scheduling of the observations (Phase II). To ensure that the survey strategy (dither size and pattern, tiling, field selection, sky conditions, moon phase, etc.) is compatible with the attributes of WSO-UV, and with the goals of the respective CP.

- Basic monitoring the progress of the CP. To oversee the data transfer from the Observatory to the teams, to monitor PHASE 2 progress, delivery of data products from the CP Teams to the WSO-UV archive, in terms of keeping to the agreed upon delivery schedule, product types, and quantity.

- Validating Survey Data Products. The WCPT will act as a referee and will base its assessment of the data quality of the survey products, on the quality control parameters, and the detailed reports provided by the CP teams. These quality control parameters are described in the CP proposal, and the WCPT will ensure that the CP teams comply with these quality control standards. In the case of a disagreement, the WCPT may carry out independent checks on a subset of data products delivered by the PIs, using standard tools and consolidated criteria.

- Issuing and updating guidelines and WSO-UV standards for ingestion and digestion of data products by the WSO-UV archive.

5. PLANNING

The kick-off of the elaboration of WSO-UV core program will be in June 18th, 2018 with the release of the call for letters of intent. This call is issued with the purpose of mapping the key science projects beforehand. It will also allow the generation of broad international consortia of scientists.

Proposals will be submitted through winter 2018 and the final list of approved proposals will be released in February 2019. This will grant two years to the teams required preparatory observations to carry then on, and show that they will be ready for WSO-UV launch.

In March 2020, the final deadline for Phase I proposals is set and the list of approved proposals will be ready in June 2020 at the time the call for Phase II proposals is issued.

In January 2021, the Phase II will be closed granting half a year to the WSO-UV Science team to cross-check and optimize the final list of targets for the Core Program.

The calendar for the **CP calls** is summarized in Table 5.1.

June 18th, 2018	Call for letters of intent. Only proposals requiring preparatory observations.
July 27th, 2018	Deadline for the submission of letters of intent for WSO-UV core program. Only proposals requiring preparatory observations.
September 14th, 2018	List of letters of Intent is made public
October 8th, 2018	Release of the call for proposals. Only proposals requiring preparatory observations.
December 14th, 2018	Deadline for submission. Only proposals requiring preparatory observations.
February, 2019	TAC releases the list of approved Phase I proposals
November, 2020	Call for core program proposals Phase I (**all inclusive**). At this time, the **proposals** (with preparatory observations) **approved in the 2018 call must submit only** the information to prove that the **preparatory observations** have been **successful**.
February 2021	Deadline for core program proposals
June 2021	TAC approves the final list of proposals
June 2021	Call for Phase II is released
January 2022	Phase II closes
June 2022	Core program target list complete - scheduling ready

Table 5.1. Tentative calendar for the Core Program Calls