

# The SEDA-WDS Project

## Justification and Aims

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The Washington Double Star Catalog (WDS), the world reference catalog of this field, is supported and managed by the U.S. Naval Observatory (USNO). In this database more than 100000 double and multiple stars are catalogued. The catalog is constantly being updated in the basis of measures which have been sent by professional observatories, and, above all, by amateur astronomers who, this way, develop an interesting first-level project of Pro-Am collaboration. Moreover, the number of stars which have been come out in the WDS is bigger and bigger as recent discoveries are taken place. Most of these discoveries are reported by dedicated amateur astronomers.

However, as it happens with this sort of extensive catalogs, there are many stars which require and up-to-date in their data. Having in mind that most of the stars published there, belong to historical observers' discoveries (some of them made their observations two centuries ago) and, above all, due to the enormous number of stars listed there, many of the WDS double stars are considered as neglected: they have been neither confirmed nor observed for more than 20 years (some of the cases are specially striking: they have not been measured for more than 200 years).

The SEDA-WDS project (WDS Neglected Double-Stars Monitoring) pretends that Spanish amateurs' works get together (it is a project opened to international cooperation, though). Because the most part of the amateur astronomers possess the necessary set of instruments, they can make an important contribution to the investigation of this thrilling double-star

world. Considering, in addition, that observation time of professional observatories are very limited, we can say that this is a work which is very suitable for non-professional astronomers.

This project so, tries to make the important contribution of updating the data appeared in the WDS. It will be proposed all the neglected stars of a particular constellation to be made the relative astrometry on a six-monthly basis. The only requirement is that the double stars can be observed and measured by the larger possible number of observers.

The stars that will be selected in each campaign will have to get the following requirements:

- Magnitude  $\leq 16$ .
- Separation  $\geq 3''$ .
- To be double stars which weren't measured after 1970.

The aim is that the stars are resolvable to practically any telescope and CCD camera. Anyhow, for future campaigns we propose to include more close double stars (below  $3''$ ) in such a way that it could exploit the whole instrumental capacity of the diverse collaborators of the project. Even though the catalog is filtered, there are dozens of double stars which have not been measured since the given date. So, a project like this must be, inevitably, a cooperative one.

Common working ways will be offered by the coordinators, so that, the data obtained can be standardized. People who coordinate the project will offer themselves to participants, in order to answer any question and respond to any requirement that can emerge, as well as, to guide them if necessary.

To participate is quite simple. We thank all the people interested for their cooperation, whether they are double-star experts or not. For this work a telescope and a CCD camera is required (a webcam can also be used in this way). A few notions about how to use the specialized software are needed, too. An amateur specialized in comets, asteroids, variable stars or any other astronomy branch, can perfectly spend a bit of our observation time to this exciting project.

The obtained results will be published in "*El Observador de Estrellas Dobles*". This journal is specialized in the subject and it is selected by USNO team as a reference publication in relation to the introduction of data in the WDS.

Each observer will have their authorship into the project.

In sort, the aims of SEDA-WDS project are:

- To contribute to the WDS updating.
- To be part of a first-level project of Pro-Am collaboration.
- To develop a collaborative project into the international amateur community.
- To increase the interest towards the study and observation of double stars, especially among those who do not often work in this field.
- To encourage digital technique use coming from CCD for the production of double-star astrometry measurements.

- To publish the results in the journal *El Observador de Estrellas Dobles* in order to they be included in the WDS catalog.

Based in the interest and explicit observers' request in the southern hemisphere (mainly in Argentina), we have expanded the project towards austral skies by means of specific campaigns for these latitudes. The new division of the original project is named SEDA-WDS austral.

***SEDA-WDS on the web.***

For more details above the project visit the Internet site:

<https://sites.google.com/site/sedawds/>

The web page are structured as follow:

- Introduction: this document.
- Methodology: a set of relevant papers, tutorials and documents to explain the work methodology.
- Campaigns: the proposed six-monthly observational programs. They are available for downloading in both PDF and Excel spreadsheet.
- Reports: How to send the results? In Excel format (downloadable spreadsheet) by means a specific e-mail account.
- Software: links to the software reduction packages.
- Links: useful links for the double-star work.
- News: news and advises about the project.
- Results: information about the results of each campaign.
- Coordinators: way of contact with the coordinators.

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***Coordinators.***

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