

# INTERNATIONAL LIVING WITH A STAR PROGRAM IN UKRAINE

## SHORT DESCRIPTION

The INTERNATIONAL LIVING WITH A STAR (ILWS) program is the main topic of international collaboration for Ukraine, which, having considerable scientific and technological potential in space research, also is ready to participate in this program with the following contribution.

It is known that in order to have efficiently operating ILWS monitoring system it is necessary to have the corresponding data both from the far space, ionosphere and from the ground stations.

All these three stages of the ILWS monitoring are under the development in Ukraine. First, the ground based support is realized already at several scientific institutions of Ukraine. The leading role plays Main Astronomic Observatory of National Academy of Sciences of Ukraine (Kyiv) with its departments in Crimea and Caucasus mountains. The Observatory is well known by its solar studies made both from the Earth surface and recently onboard "Coronas" space mission. Then it is the Radioastronomy Institute of National Academy of Sciences (Kharkiv), which has a unique decametric radiotelescope "URAN" able to operate in the interferometer mode with its sections situated in Ukraine (Lviv, Odessa) and with the partners abroad. Other site also monitored mainly by this institute is modern electromagnetic observatory operating at Ukrainian Antarctic station "Akademik Vernadsky". Due to exclusively clean electromagnetic environment there it became possible to carry out the observations at the lowest possible electromagnetic sensors sensitivity threshold. Several new physical effects are already detected there and theoretically explained. This observatory is practically ready for ILWS program participation. The only problem, which has to be solved there, is reliable real-time data transmission to the selected Data Center.

Next stage – continuous ionosphere observations – will be realized end of the year 2003 when the Ukrainian remote sensing satellite "SICH-1M" will be launched into polar sun-synchronous orbit (altitude ~ 650 km) with the specialized scientific electromagnetic equipment "VARIANT" onboard. This will allow receiving regular operative information about the ionosphere conditions. Other ionospheric experiment dedicated to ILWS program is also under realization. This is Russian-Ukrainian "ENVIRONMENT" mission aimed at the continuous monitoring of electromagnetic state of the ionosphere onboard Russian segment of International Space Station. The feasibility study is over and the foreseen launch date is 2004.

And the most distant part – observations in solar wind far away from the Earth – is planned to realize in frames of Russian-Ukrainian spatial experiment "INTERBALL-PROGNOZ" (tentative launch date - year 2006). This experiment is especially aimed at the ILWS program and foresees the synchronized operation of one satellite at Lagrange point L1 (Russian responsibility with possible Brazilian participation) and of a cluster of 3 micro-satellites at sun-synchronous orbit (Ukrainian responsibility with international participation).