СЕКЦІЯ 15. НАВКОЛОЗЕМНИЙ КОСМІЧНИЙ ПРОСТІР. РАДІОФІЗИКА І ІОНОСФЕРА

USING DATABASE MANAGEMENT SYSTEM IN THE SOFTWARE FOR PROCESSING INCOHERENT SCATTER RADAR DATA

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Software for incoherent scatter radar (ISR) data processing developed in the Institute of ionosphere includes UPRISE and UPRISE2 packages [1, 2]. The first one is evolving since 2013. It is written in FreeBASIC programming language and currently consists of 18 independently working programs for viewing and processing initial radar data as well as estimating ionospheric plasma parameters. The second package (UPRISE2) is written in Java and contains several entry points. This allows implementing different scripts for data processing, for example, for Kharkiv ISR (Ukraine) or MU radar (Japan) [3]. Another well-established feature of the UPRISE2 is using a database management system (DBMS) for storing, filtering and sorting intermediate results of the ISR data processing. SQLite DBMS was chosen due to such advantages as portability and compact size. Besides it doesn't need installing and configuring on user PC. Work with data is carried out by executing SQL queries. It is possible to create tables (with time, altitude, lag and correlation function value columns) that correspond to processing steps, insert data to these tables, get height profiles, temporal variations and correlation function for given time moment and altitude.

Implementing procedures using SQLite into UPRISE package will extend its abilities and reduce memory usage (currently all intermediate results are loaded into RAM).

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