

Novel Research in Astrophysics and Geophysics

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Abstract: In the past few decades innovative approach is to foster collaboration and effective synergies among disciplines such as space exploration, atmospheric and Earth observations, laboratory and field experiments, and numerical modeling, with a high potential for direct application in Earth and other planetary research. Modeling various atmospheres with supercomputer capability, as well as diagnosing astrophysical and laboratory plasma using atomic and molecular datasets, relies on the creation and improvement of theoretical techniques and data computation methods (see e.g. Srećković et al. 2024). Multi-instrument and multi-disciplinary competence are needed to solve complicated climate concerns and its repercussions. Moreover, the growing amount of data suggests a rise in the use of automated tools and retrieval techniques (see e.g. Škoda and Adam 2020 and references therein). Model evaluation, data assimilation, satellite validation, and investigations of diverse

processes in the atmosphere and on Earth can all easily make use of the new information and retrieval products.

This contribution is progress report of work on a common topic within the bilateral project "The analysis of big data related to earth and sky observation: environmental applications and influence on life sciences" between the Bulgarian Academy of Sciences and the Serbian Academy of Sciences and Art.

Keywords: modeling, climate, multi-disciplinary investigation

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