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Abstract: With a high potential for direct application in Earth and other planetary research, the innovative approach of the past few decades has promoted cooperation and productive synergies among exploration, disciplines like space atmospheric and observations, laboratory and field experiments, and numerical modeling. To model atmospheres with supercomputers and diagnose astrophysical and laboratory plasma using atomic and molecular datasets, theoretical methodologies and data computation methods must be developed and improved (see e.g. Srećković et al., 2024 and references therein). To address complex climate issues and their consequences, multi-instrumental and multi-disciplinary expertise is required. As data grows, automated tools and retrieval approaches are increasingly being used (e.g., Škoda and Adam 2020). We participated in this research with our contribution.

Keywords: AstroGeoInformatics, modeling, climate, multi-disciplinary investigation

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