

International Conference on Recent Trends in Geoscience Research and Applications 2023

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BOOK OF ABSTRACTS AND CONTRIBUTED PAPERS



Edited by Aleksandra Nina, Snežana Dragović, and Dejan Doljak



Belgrade
2023

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Scientific Rationale

Geoscience research and applications are of crucial interest in science and many areas of modern life. For this reason, exchanging knowledge in various relevant areas is essential for development in scientific, engineering and programming activities. The conference aims to highlight the importance of joint research of experts in these fields and provide a platform for knowledge exchange.

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COVERAGE OF DATA RELEVANT FOR ATMOSPHERIC RESEARCH IN BEAM DATABASE

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Ensuring reliable atomic and molecular (A&M) data is of paramount importance for analyzing and modelling processes in science fields as plasma (Dujko et al., 2021; Marinković et al., 2007), astrophysics (Dimitrijević et al., 2021; Marinković et al., 2017) or atmosphere and environment (Marinković, 2009; Campbell & Brunger, 2016; Campbell & Brunger, 2023). A large consortium of research groups and institutions has been established in order to provide a unique entry point for A&M data distributed along different databases via a single portal known as VAMDC—Virtual Atomic and Molecular Data Centre (Albert et al., 2020; Dubernet et al., 2016). One of the databases specialized for electron-atom(molecule) interactions is the BEAMDB—Belgrade Electron/Atom(Molecule) Data Base (Marinković et al., 2019).

Molecular species that are covered in BEAM database and are relevant for atmospheric research include triatomic molecules (H₂O, H₂S, N₂O) and larger organic molecules (methane, formaldehyde). Beside carbon dioxide, these molecules represent powerful greenhouse gases. Especially methane (Vukalović et al., 2021) has a large impact on climate albeit its concentration in atmosphere is relatively small. Once in atmosphere, its potential to absorb heat via vibrational excitation is much larger than for CO₂ and also when it is consumed as a fuel, it releases carbon dioxide. Further plans to feed data in BEAMDB are to cover some of inhalation anesthetics such as halothane (Maljković et al., 2023), sevoflurane (Vukalović et al., 2022) and desflurane. These molecules have a prominent role in depletion of stratospheric ozone.

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