

## Development of Extrasolar Planetary database Exokyoto into its application for new criteria of HZ

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We developed extrasolar planetary database ExoKyoto which includes CHZ and confirmed extrasolar planets with all available information. We attempted to develop new criteria for habitable zone in order to apply its potential usage.

An integrated database of confirmed exoplanets has been developed and launched as “ExoKyoto,” for the purpose of better comprehension of exoplanetary systems in different star systems. The HOSTSTAR module of the database includes not only host stars for confirmed exoplanets, but also over hundred thousands of stars existing in the star database listed in (HYG database). Each hoststar can be referred to in the catalogue with its habitable zone calculated, based on the observed/estimated star parameters. For outreach and observation support purpose, ExoKyoto possesses Stellar Windows, developed by the Xlib & Ggd module, and interfaces with GoogleSky for easy comprehension of those celestial bodies on a stellar map. Target stars can be identified and listed by using this database, based on the target magnitude, transit frequency, and photon decrease ratio by its transit.

The flate impact estimation module of the database is the first attempt to estimate potential impacts for "life" form on the planets which provides estimated dose under hypothetical atmospheric compositions and magnetic field. Using the framework of the database we propose a comprehensive evaluation system for stellar flares and their impacts, focusing on SPE on selected extrasolar planets (Kepler-283 b and c, Kepler-491 b, Kepler- 957 b, Kepler-1558 b, Proxima Cen b, and TRAPPIST-1 systems).

Keywords: CHZ, ExoKyoto, Stellar flare