

Habitable zones : A new approach to physical factors. S.R. Valuri¹ and V.T.Sangli², ¹RNSIT, (sagarika@cfrce.in), ²TISB (vishnutsangli@gmail.com).

Introduction: The long, detailed world of habitable planets has uprooted far more questions than has planted seeds of answers. As we push the boundaries for what we consider "Habitable," we start to spiral into problems of what can and cannot be regarded as life-supporting. As we look for planets that are like the earth and regularly refer to the "Earth Similarity Index," we tend to forget that not all parts of the planet are and were conducive for life to exist. Even the earth has its own Goldilocks zone. One of the main physical features the paper looks at is - Axis Inclination and inclination angles. We build a comparative study of earth and Earth-like planets that suggests that one of the main differentiating factors is the Axis Inclination and rotational rate. To combat the problem of - "Exoplanets with very similar physical features show no earth-like signs" (when it comes to life support systems), we suggest looking at new physical characteristics that contribute to concentrated habitable zones.

To examine the formation of habitable zones on planets, we also look at orbital mechanics of early stellar system formations and dynamics.

The paper mainly reviews the solar systems orbital mechanics that led to the tilt and inclination angle in the earth's axis and orbit. As we study and work through the planet and system's intertwining dynamics, we talk about the influence of different physical features that play a role in creating habitable zones.

The article thoroughly examines the known primary 4 and sub two physical characteristics that help us speculate about habitable zones; introducing the roles of obliquity and the proposition of looking for these compartmentalized zones on exoplanets than ideal earth-like planets.