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Title: Habitable Zones and the frequency of potential habitable planets in Kepler data
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Abstract: Identifying terrestrial planets in the habitable zones (HZs) of other stars is one of the primary goals of Kepler mission. I will discuss about our recent results on new estimates of HZs around Main-sequence stars. According to our new model, assuming Earth mass planets with Earth-like compositions, the inner and outer HZ limits for our Solar System are at 0.99 AU and 1.67 AU, respectively, suggesting that the present Earth lies near the inner edge. We have also estimated HZ boundaries for planets with varying masses and compositions, Our results indicate that larger (more massive) planets have wider HZs, than do smaller ones. Applying the new HZ limits to cool, low mass stars (M-dwarfs) in NASA's "Kepler" data, a conservative estimate of the frequency of potentially habitable planets around M-dwarfs is ~ 48% (three times higher than previously reported). Our model does not include the radiative effects of clouds; thus, the actual HZ boundaries may be broader than our es!
timates which potentially can increase the frequency of terrestrial planets in the habitable zones.