

atmosphere

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The Mars Atmosphere and Volatile (MAVEN) mission has been providing valuable information on the atmospheric loss of Mars since its launch in November 2013. The Neutral Gass and Ion Mass Spectrometer (NGIMS) onboard MAVEN, was developed to analyze the composition of the Martian upper atmospheric neutrals and ions depending on various space weather conditions. We investigate a variation of upper atmospheric ion densities depending on the interplanetary coronal mass ejections (ICMEs). It is known that the Mars has a very weak global magnetic field, so upper atmosphere of Mars has been strongly affected by the solar activities. Meanwhile, a strong crustal magnetic field exists on local surfaces, so they also have a compensating effect on the upper atmospheric loss outside the Mars. The weak crustal field has an influence up to 200km altitude, but on a strong field region, especially east longitude of 180° and latitude of -50°, they have an influence over 1,400km altitude. In this paper, we investigated which is more dominant between the crustal field effect and the ICME effect to the atmospheric loss. At 400km altitude, the ion density over the strong crustal field region did not show a significant variation despite of ICME event. However, over the other areas, the variation associated with ICME event is far more overwhelming.

항성/항성계

[초 SA-01] Variable stars in Galactic open clusters of the outermost VVV disk tiles

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We present the preliminary results obtained from the search of variable stars in the fields of open clusters located in the direction of the Galactic disk. The current study is based on J, H and Ks photometric data obtained in the near-infrared (NIR) VVV Survey. A first classification of the newly found variable stars is performed based on their light curves, periods and amplitudes. We also show the (Ks, J-Ks) color-magnitude decontaminated diagrams of the selected open clusters and examine the location of the variable stars in these diagrams. Available proper motion data are also used to analyze the possible membership of the discovered variable stars to the corresponding clusters, as well as to redetermine with more accuracy the parameters of the poorly studied clusters.

[구 SA-02] A new catalogue of galactic eccentric eclipsing binary stars

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우리 은하에 있는 618개 이심궤도 식쌍성의 카타로그를 제작하였다. 그 이심 식쌍성들은 우리의 극심시각 database에 수록된, 또는 여러 천천 탐사 자료에서 수집된 측광 자료로부터 새롭게 결정된, 또는 우리가 직접 관측하여 얻은 약 13만개의 극심시각 자료의 식시각도 분석을 통하여 편집된 것이다. 618개의 이심 식쌍성 중에서 근성점 운동을 보이는 시스템은 모두 170개이며, 이 중에서 30개의 쌍성이 근성점 운동과 광시간 효과가 동시에 일어난다. 근성점 운동을 보이는 별들의 근성점 운동 변수들을 일관된 방식으로 산출하여 카타로그에 수록하였다. 우리가 작성한 최신의 카타로그는 기존 카타로그에 비해 양과 내용에 있어 가장 방대하다. 우리 은하 근성점 운동 쌍성들과 소마젤란 성운과 대마젤란 성운에서 발견된 근성점 운동 쌍성들을 모아 근성점 운동 변수들의 통계적 분포를 살펴 보았고, 그 결과들을 논의한다.

[구 SA-03] A Photometric Investigation of KIC6118779 with Phase Smearing Effect

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KIC6118779 is an over-contact binary system having a short orbital period of about 0.36 days. The photometric data for this system are acquired