

INFORMATION ON NEW CONCLUSIONS OF THE DOCTORAL THESIS

Doctoral thesis title: “Study of the Equatorial Electrojet (EEJ) from CHAMP satellite and observatories data in Vietnam and adjacent areas”.

Specialty: Geophysics

Code: 62 44 01 11

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Study Period: 2008-2015

Supervisors: Asc. Prof. Dr. Ha Duyen Chau
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New contribution of the thesis:

1. In the thesis we used the data of the geomagnetic field obtained from CHAMP satellite and some observatories in Vietnam and over the world during a long time span (2002-2007) to study the equatorial electrojet (EEJ). Utilization of polynomials with different degree permits to separate almost the magnetic field caused by EEJ from CHAMP satellite data. The amplitude of the magnetic field caused by EEJ obtained from CHAMP data varies from 20nT to 67nT and EEJ at the longitude through Vietnam (105°E) is strongest.

2. In all over the meridian, the current density of EEJ calculated from CHAMP satellite data varies from 40A/km to 140A/km. The global EEJ density represents a clear seasonal variation; 4 peaks maximum and 4 peaks minimum in summer and equinox, but only 3 peaks maximum and 3 peaks minimum in the winter. This study shows that the EEJ system has both local and global properties, the EEJ is directly related not only to the activity of the Sun, but also affected by many other electrodynamic processes on the ionosphere and the complicated physical processes in the atmosphere.

3. It is the first time in Vietnam we have studied and applied spherical cap harmonic analysis method for modeling the magnetic normal field and calculated the magnetic anomaly for Viet Nam and neighbouring areas. The maps of elements of magnetic field (epoch 2007.0) consists of not only the main magnetic field of the Earth but also the magnetic field of the Earth's crust with the high reliability.

Supervisors

Ph.D. candidate

Asc. Prof. Dr. Ha Duyen Chau

Le Truong Thanh

**Confirmation of
Education institution**