Analysis of the electron precipitation spatial distribution using the satellite measurements

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We tried to restore the instant picture of the electron precipitation spatial distribution and it's dynamics using the satellite measurements. The precipitation spectrograms obtained by the DMSP satellites have been analyzed. Every spectrogram corresponded to one satellite pass across the high-latitude region. The DMSP satellite group includes 4 vehicles. It provided approximately 5 cross-polar passes during every hour. We looked for the similar features in the nearby regions and in the adjacent times which could be explained as parts of the same spatially extended structure. The next conclusions have been made:

- The precipitation picture is symmetrical in the northern and southern hemisphere.
- An average "life time" of the large-scale features in the spatial-energetic distribution of the precipitating electrons is about of order 2 hours in duration.
- Existing array of the satellite measurements allows restoring large-scale picture of the spatial distribution of the precipitating electrons. But it's impossible to restore fast (shorter than tens of minute) and small-scale details by the available data. Moreover, there is large longitude sectors which aren't covered by satellite passes. In order to extrapolate the distribution picture into such areas we must use other models.

These are the first results of our job. Our main aim is to provide the realistic model input data about the instant spatial-energetic distribution of the precipitating electrons in order to simulate real events using the global numerical upper atmosphere model.

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