



## **FAC variety observed by Cluster, Champ and Swarm**

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Both large- and small-scale field-aligned currents (FAC) have been observed in the auroral zone. Small-scale systems are often observed with latitudinal thicknesses of several tens of kilometers. As to large-scale systems, these can extend over several degrees of magnetic latitude, and can be described in terms of R1 and R2 FAC systems. A detailed analysis of phenomenon in the auroral area has been done, using Cluster four satellites constellation, one low orbit satellite Champ and examples from the three satellites of Swarm. In particular, we focus on coordinated events between Cluster and Champ in order to classify the FAC signatures seen at both medium and low orbit. The FAC system exhibits both long and short term periodic variety. There is a good correspondence of FACs observed by high altitude Cluster constellation and the low altitude Champ and Swarm satellites. These signatures also associate with ground magnetic field data. Further work will investigate the relationship of FACs with sub-storm occurrence and changes in the IMF.