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Interhemispheric Differences in the Ionospheric Potential

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During solstice conditions, there is a strong asymmetry between the winter and summer ionospheric conductivities. This causes a feedback to the magnetosphere, in which the field-aligned currents are increased into the summer hemisphere and decreased into the winter hemisphere. Even with this compensation, there is still a statistical interhemispheric difference in the ionospheric potential, where the winter potential is typically larger than the summer potential. In global models of the magnetosphere, the same trends are observed, but the interhemispheric differences are much larger. This talk will review what observations show, what the models show, and suggest some reasons for the differences.