

# Spectral Analysis of the High-Speed Streams in the Solar Wind

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The cyclic behavior of the high-speed streams in the solar wind is investigated during the solar cycles Nos. 20-22 (1964-1996) on two different types of streams according to their solar origin: the streams produced by coronal holes (co-rotating) and the flare-generated ones, in keeping with the classification in different catalogues. The analysis is performed taking into account the importance of the streams as well as the relative sunspot numbers (Wolf numbers). The spectral components of the data series have been extracted as amplitude and phase. The same fundamental period, of about 11 years, has resulted for co-rotating and the flare-generated streams from the amplitude analysis. The phase analysis has revealed the specific phase shifts of the two types of streams relative to the minimum and maximum of the solar cycle. The phase differences are explained as being a consequence of the extended solar cycles and the polar magnetic field reversal. Our results can be used in the solar wind perturbation forecasts with direct implications on space weather.