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Solar activity, cyclone circulation and negative anomalies of total ozone content

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Ultraviolet Solar radiation (UVC component) produces ozone layer in stratosphere. Solar wind increase UV radiation intensity and electrochemical mechanism. These processes increase ozone production. After reconnection among interplanetary and Earth magnetic field, Solar wind enters an Earth atmosphere mostly through the polar magnetic funnel. Total ozone content (TOC) is the most great over Polar Regions and in the great measure it corresponds with low atmospheric pressure field. When the Solar wind with high kinetic energy enters in Earth atmosphere, it produces relatively narrow zone with extremely small ozone concentration (so-called ozone hole) into large area with high TOC. The aim of this paper is to find correlation between ozone hole and atmospheric cyclonic circulation. Circulation analysis at 10 mb level over South and North Pole shows that extremely negative ozone anomalies (similar tropical cyclone eye) are correspond with strong atmospheric cyclone circulation. This phenomenon (ozone cyclone and ozone eye) has seasonal character. It is clearly visible over South Pole between August and October. Over North Pole it is visible periodically from December to February. From this it can be concluded that extremely negative anomalies of TOC are the natural phenomenon.