

## **Multivaried Index DCPIM (Deep Convection Process Identification Model) to forecasting and hailstorm clouds seeding operative decision.**

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It is known that the convection conditions are determined to vertical atmospheric structure, then it is necessary to know the upgrade sounding data in order to know the convections possibilities when the situation requires it. In the anti-hail fight operation these data should be upgraded continuously in order to make better decisions, but this is practically impossible, because the cost is expensive and the time needed is very long. The objective was to develop a new methodology in this subject in order to make efficient operatives decisions in a cheaper and faster way; and to have a new study tool.

In this way, our research hypothesis was that on ground meteorological data are related to the vertical atmospheric meteorological data and all changes in the atmosphere will produce changes on ground meteorological data. On this point of view, it is possible to make an index with on ground meteorological data in order to detect its changes and correlated them with the deep convection process.

With the registered data during five months, all day, every hour; it was possible to compile a sample with almost 1700 elements, and from its process with the Statgraphics software we get a definitive multiple regression model; which had an excellent statistical adjust (P-value = 0), and its describe completely the wished situation.

The multivaried index is:

$$\text{DCPIM} = 3.(-0,00118887.P + 0,0372169.R + 0,057063.T - 0,0546601.UV)$$

We have validate the index during 2006-2007 on anti-hail fight season in Mendoza (Argentina), and the obtained results were in very agree with the real process occurred.