

COMMENTS ON MURALIKRISHNA ET AL. "DESIGN AND EVALUATION OF HYGROSCOPIC SEEDING OPERATIONS IN ANDHRA PRADESH, INDIA"

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I am skeptical about results presented in this article. I participated in seeding operations in Andhra Pradesh with the Weather Modification, Incorporated (WMI), team during operations in 2004 (September-October). I worked with radar data and carried out operational seeding duties. Very deep convection was observed during that period. Cloud tops reached 15-18 km. The cold rain process predominated. Hygroscopic seeding was not practically used during that period by the WMI team; rather, AgI seeding was used. There were some attempts of AGNI Aviation, Inc, (India) to use hygroscopic flares to seed altocumulus clouds, but cloud characteristics and possible rain increase associated with these types of clouds seemed miserable in comparison with rain produced by the deep cumulus. Moreover, these hygroscopic seeding operations were carried out for nearly a week and caused a lot of doubts that time. Most of seeding operations during 2003 were also carried out with AgI as far as I know.

It is not clear how the authors separate AgI seeding results from Hygro seeding. Is it possible to do this for 2003-2004?

Another remark deals with the reagent used. Weather Modification, Inc., used hygroscopic flares producing particle sizes typically less than 1 μm . Muralikrishna et al. state that the seeding flares produced particles of optimal size 5-10 μm . Do we have different types of reagent? If it is so, it will be very interesting to get more information about these new flares.

To evaluate the scientific level of the presented article it will be really important to get answers on the above questions.

I am going also to state that the AgI seeding conducted in 2004 produced really encouraging results in India. For results of our investigations which deal with seeding efficiency were already presented, see:

Krauss, T.W., W. Shaw, A.A. Sinkevich, and V. Makitov, 2005: Exploratory physical and statistical assessment of the results of cloud seeding in India 2004. Proceedings, International Workshop on Weather Modification and Cloud Seeding Technologies for Rain Water Enhancement. Jan 27-28, 2005. Jawaharal Nehru Technological Univ., Hyderabad, India.

Krauss T.W., W. Shaw, A.A. Sinkevich, V.S. Makitov, 2006: Cloud seeding in India and physical and statistical assessment of the results. *Russian Meteorology and Hydrology*, **N7**, 24-33.

Krauss, T. W., A.A. Sinkevich, N.E. Veremey, Yu. A. Dovgaluk, V.D.Stepanenko, 2007: Investigation of the large vertical depth Cb (Andhra Pradesh province, India, 2004, September 28) . *Russian Meteorology and Hydrology*, **N1**, 30-42.

Krauss, T.W., A.A. Sinkevich, N.E. Veremey, Yu. A. Dovgaluk, V.D.Stepanenko, 2007: Investigation of Large Vertical Depth Cb in India. 4th European Conference on Severe Storms, Trieste, ITALY

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