

Cloud Seeding Operations for the Mitigation of Drought Conditions

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The Government of Andhra Pradesh has been carrying out Cloud Seeding Operations since 2003 and they have been systematically monitored and evaluated by Centre for Earth, Atmosphere and Weather Modification Technologies, Jawaharlal Nehru Technological University Hyderabad since 2005. The Cloud Seeding Operations were mainly aimed at enhancing the rainfall of 653 mandals in the 12 RSAD Districts namely Medak, Karimnagar, Mahbubnagar, Rangareddy, Nalgonda, Kurnool, Kadapa, Chittoor, Anantapur, Guntur, Prakasam and Nellore. These mandals are identified based on the previous rainfall data and whose average annual rainfall is 600 mm and below. The experience of the Cloud Seeding Operations in enhancing the rainfall and mitigating the drought conditions has been discussed in this paper. It is found that rainfall enhancement is more if the monsoon is vigorous. Out of all the years monitored by JNT University Hyderabad, year 2009 happens to be the drought year since 2005. The experience of 2009 Cloud Seeding Operations shows that if there is a complete drought conditions set in, there were few seedable clouds and the enhancement of rainfall in the meager seedable clouds is also little. However based on the rainfall data provided by Directorate of Economics and Statistics, Government of Andhra Pradesh, it is a very positive indication in favor of Cloud Seeding that 99% of excess rainfall mandals in the Andhra Pradesh, and 75% of normal rainfall mandals in the Andhra Pradesh are situated in 12 RSAD Districts. On an average the rainfall enhancement through Cloud Seeding for the last three years is estimated as 19.17% during the year 2007, 18.25% during the year 2008 and 17.01% during the year 2009. Therefore on an average the Cloud Seeding Operations helped in enhancing the rainfall up to 18.14% during the last three years. This is significant in view of the fact that we declare meteorological drought if there is a more than 25% decrease in precipitation from normal. More over the rainfall enhancement is substantial (17.01%) even during the drought year 2009 when compared to the enhancement of 19.17% during the good monsoon year 2007.