SEVERE STORMS on dated 23rd July 2001 Islamabad pakistan

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I. INTRODUCTION

The Weather Predictions for specified region in term of time duration are issued, long, medium, short and very short range (now casting) forecast. The severe storm like thunderstorm associated with heavy rainfall and strong wind often occurred for small duration and over small scale (meso/sub-synoptic scale), which falls in short range forecast. The extreme events can be determined from the synoptic weather charts and other forecasting tools. Mostly the extreme events developed on small scale over few hundreds sq km and only for short duration of 3 to 48 hours, which is localized in nature. It is very difficult to pinpoint the occurrence of severe phenomena within unstable area. These are most destructive phenomena in nature. Highly capable Meteorologist can calculate and determine potential of severe events, prepare timely forecast and issue warning to disaster management agencies, which can minimize losses, pertaining to damages of life and property. Moreover some modern and advanced techniques and methodologies are required for the improvement in prediction of severe events.

Besides the climatological features and records over North Pakistan at higher than 30° N Latitude in this region, unusual and severe events occur during monsoon (July to September) and Pre-Monsoon, due to interaction of sub polar cold & moist air (westerly wave) and southwest tropical maritime (warm and moist) air. This uncertain meteorological feature purely depends upon the local atmospheric dynamics and orography.

II. PRESENTATION OF RESEARCH

On 23rd July 2001 at Islamabad & adjoining area one of the worst thunderstorm with heavy downpour was recoded in the history of 100 years record-breaking rainfall 620mm within 24hours. This "CLOUD BURST", was the sequel of vigorously developed cloud due to combined effect of well-marked westerly trough (westerly wave) passing over 500hPa, between 40-50°N and 60-70°E and enough supply of moisture from the southwest monsoon. The case study of this severe rainstorm is being discussed related to causes and effect of the torrential rain.

III. RESULTS AND CONCLUSIONS

This severe storm has been developed over NNW sector of Islamabad by interaction of two different air masses having different boundaries due to the following,

1. Strong incursion of Southwest Monsoon.
2. Presence & support of westerly trough (wave) during Monsoon period.
3. The disturbed area lies from Monsoon area to higher latitudes in sub polar region.
4. Disturbed area located ahead of westerly trough.

These clearly indicate that this phenomenon is a combined effect of southwest Monsoon and westerly trough, which is unique in characteristics.

IV. AKNOWLEDGMENTS

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V. REFERENCES

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