

Presentation on TSRA days in Yangon International airport (Hourly analysis of 2009-2019)

Kyaw Than Oo

Nanjing University of Information Science and Technology, China

Abstract:

A Thunderstorm Day Is Defined As An Observational Day During Which Thunder Heard At The Station” (Kuleshov 2012). Thunderstorms have a significant impact on airport performance and cause delayed operations if the airport capacity is constrained. “TSRA days in Yangon International Airport” is a statistical analysis of the observations data obtained by the meteorological stations at YANGON international airports (VYYY) of Myanmar for Thunderstorm days occurrences. It covers an eleven-year period from January 2009 – December 2019. During 2009-2019, we have 119874 times of observation data from YANGON International Airport, thirty-minute (xx20, and xx50) Aviation Routine Weather Reports (METARs). Among these data, we got 20219 times of weather phenomena occurred including 1237 times of Thunderstorms occurrences. Visibility during Thunderstorm (TS) or thunderstorm rain (TSRA) the averaging visibility will be 3500 m with 6.67% frequencies during these 2009 to 2019. Maximum TSRA occurrences may be occurred between 15:00 to 16:30 afternoons in those TSRA days at Yangon international airport. For the aviation purpose, 00:00 UTC to 04:00 UTC is the better time for daytime operations in those TSRA days. This paper will first examine the impact of aviation climatology on these airports. And a statistical analysis of the observations data obtained by each meteorological stations.

It is also intended for a wide range of users:

- International and domestic civil airlines which conduct flights to/from MYANMAR airports
- Private pilots
- Operational and administrative services of airports
- Aeronautical administration
- Air navigation services providers
- The MYANMAR Civil Aviation Agency

As the result of analysis, in July we can be faced many Thunderstorm days every year. Maximum TSRA occurrences may be occurred between 15:00 to 16:30 afternoons in those TSRA days at Yangon international airport. Thus, for the aviation purpose, 00:00 UTC to 04:00 UTC is the better time for daytime operations in those TSRA days and visibility will be 3500 m with 6.67%

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on average. Even non-El Niño/La Niña years, TSRA occurrences is up or increase year by year as the trend forecast results. Generally, in the future TSRA days may increase at VYYY. So, for the important operations we can be manage each operation requirement by time. That highly risk operations should be carrying out less TSRA months. Finally, the distributions provided in this paper could allow airports and airlines operators to forecast the average TSRA days at the infrastructure as a function of the current and forecast weather in order to apply mitigation strategies.

Keywords: Yangon International Airport; TSRA; Aircraft Accident; Thunderstorm impact