



भारतीय विमानपत्तन प्राधिकरण AIRPORTS AUTHORITY OF INDIA

DIRECTORATE OF AIR TRAFFIC MANAGEMENT
RAJIV GANDHI BHAWAN, NEW DELHI-110003
[File No. AAI/ATM/SQMS/21-33/2011]

Doc. Id: ED/ATM/2011/213301/ATMC/PROC

ATMC

AIR TRAFFIC MANAGEMENT CIRCULAR NO. 6 of 2011

Reporting of Runway Surface Conditions including Aquaplaning/Hydroplaning

1. Introduction

- 1.1 Landing on contaminated runways involves increased levels of risk related to deceleration and directional control. Therefore timely information about such runway surface conditions to flight crew of an aircraft is very important. Procedures for the reporting of runway surface conditions are detailed in chapter 7 and 11 of Manual of Air Traffic Services-Part 1 (MATS-1).
- 1.2 The report of runway surface condition is known to tower controllers through aerodrome operator, flight crew or/and tower controllers' own observations. In one of the incidents, the tower controller was not familiar with term "**aquaplaning**" reported by previous landing aircraft and did not pass this information to subsequent arriving aircraft which contributed to a runway excursion incident.
- 1.3 Aquaplaning or hydroplaning is often contributory factor in a large number of runway excursion incidents/accidents. Therefore, it is important to understand such terminology which may help in reducing such incidents/accident in future.

2. Purpose

- 2.1 Purpose of this ATMC is to develop an understanding of term aquaplaning and requirement of passing such information or any other information about runway condition to landing aircraft.

3. Scope

- 3.1 This ATMC is applicable to all Air Traffic Controllers working at various AAI airports/ATC centres/ATC units.

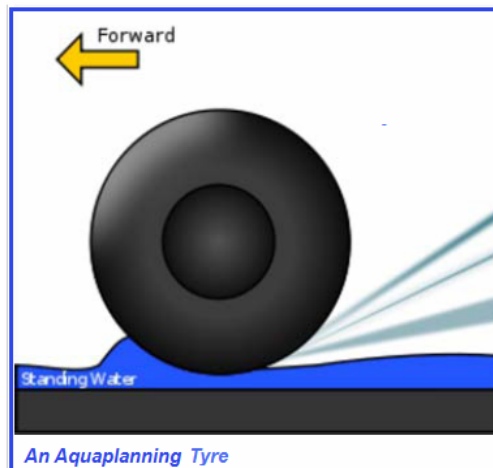
4. Definitions

- 4.1 Aquaplaning also known as hydroplaning is a condition in which standing water causes the moving wheel of an aircraft to lose contact with the surface on which it is load bearing with the result that braking action on the wheel is not effective in reducing the ground speed of the aircraft.

4.2 Runway Excursion: A veer off or overrun off the runway surface.

5 Mechanism of Aquaplaning:

5.1 A layer of water builds up beneath the tyre in increasing resistance to displacement by the pressure of the wheel. Eventually, this results in the formation of a wedge between the runway surface and the tyre. This resistance to water displacement has a vertical component which progressively lifts the tyre and reduces the area in contact with the runway until the aircraft is completely water-borne. In this condition, the tyre is no longer capable of providing directional control or effective braking because the drag forces are so low.



5.2 If such a runway surface state prevails, then flight crew are required to make their aircraft runway performance calculations using "slippery runway" data; this specifically allows for poor deceleration.

5.3 Aquaplaning can occur when a wheel is running in the presence of water; it may also occur in certain circumstances when running in a combination of water and wet snow.

6 Reporting of Runway Surface Conditions:

6.1 It is recognised that a need exists to caution flight crew of the presence of water on a runway.

6.2 The Aerodrome Operator is responsible for assessing runway surface conditions.

6.3 Whenever information is provided on aerodrome conditions, this shall be done in a clear and concise manner so as to facilitate appreciation by the pilot of the situation described. It shall be issued whenever deemed necessary by the controller on duty in the interest of safety, or when requested by an aircraft. If the information is provided on the initiative of the controller, it shall be transmitted to each aircraft concerned in sufficient time to enable the pilot to make proper use of the information.

6.4 Information that water is present on a runway shall be transmitted to each aircraft concerned, on the initiative of the controller, using the following terms:

| | |
|---------------|---|
| DAMP | The surface shows a change of colour due to moisture. |
| WET | The surface is soaked but there is no standing water. |
| WATER PATCHES | Patches of standing water are visible. |
| FLOODED | Extensive standing water is visible. |



Report of Runway Surface Conditions including Aquaplaning/ Hydroplaning

- 6.5 Reports from pilots may be retransmitted by a controller when it is felt that the information may prove useful to other aircraft:
Phraseology: *"BRAKING ACTION REPORTED BY (aircraft type) AT (time) GOOD (or MEDIUM or POOR)"*.
- 6.5 When flight crew of an aircraft reports aquaplaning/hydroplaning, the controller shall inform succeeding arriving aircraft.
Phraseology: *"AQUAPLANING REPORTED BY (aircraft type) AT (time)"*

7 Queries

- 7.1 Any queries or further guidance required on the contents of this ATMC should be addressed to:

Executive Director [ATM]
Airports Authority of India
Rajiv Gandhi Bhawan
Safdarjung Airport
New Delhi-110003
E-mail: edatm@aai.aero

8 Validity:

- 8.1 This ATMC will remain in force until further notice.

[JYOTI PRASAD]
EXECUTIVE DIRECTOR [ATM]
AIRPORTS AUTHORITY OF INDIA
Dated: 24-08-2011