

# Sandstorm Forecasting System

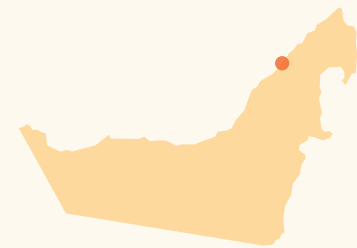
## MicroStep-MIS Success Story

<b>Tender:</b>	Sandstorm Forecasting System
<b>Client:</b>	Dubai Municipality
<b>Contractor:</b>	Unique System FZE



### Dubai Municipality

is the municipal body with jurisdiction over city services and the upkeep of facilities in the Emirate of Dubai, United Arab Emirates



United Arab Emirates

In spite of the fact that sand storms occur naturally, they can pose a great problem for human societies living near desert regions.

Meteorological definition describes the sandstorm as the situation when horizontal visibility is reduced due to the sand and dust in the air below 1000 m. Our challenge was to predict the dust event which reduces visibility below 3000 m at least for 2 hours in advance. Sand and dust in the air during such situations are enough to cause inconvenience to the people with respiratory health problems, especially in Arabian Peninsula, as it experiences frequent sandstorms.

Therefore Dubai Municipality started sandstorm prediction project. It is extension to existing Dubai Municipality Fog Monitoring and Forecasting System which runs at Dubai Municipality from 2010.

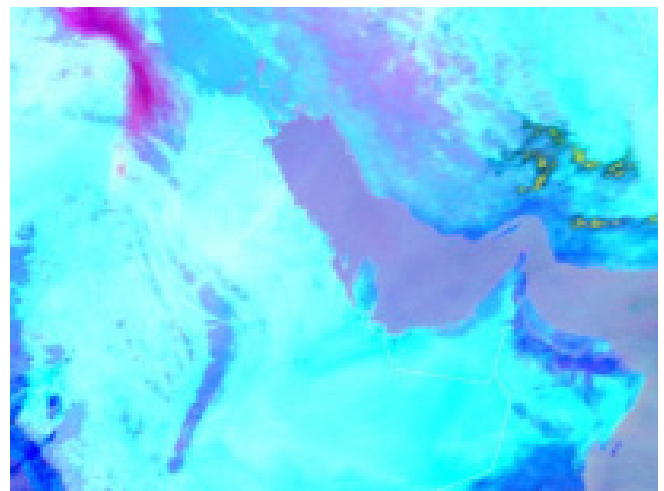
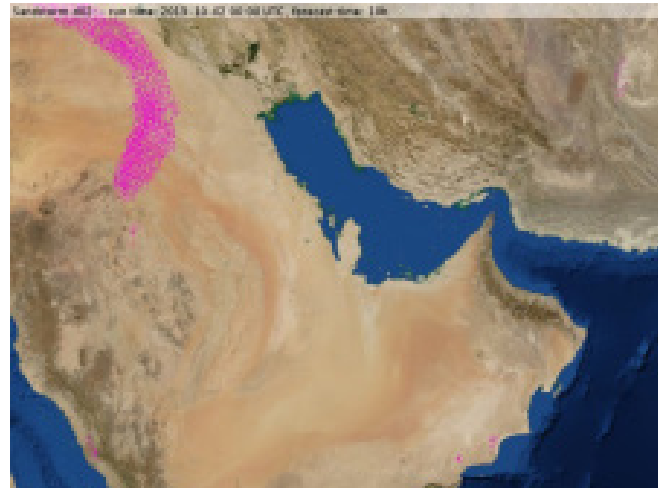
The system is based on 3D state of the art weather prediction model that Dubai Municipality has several years of experience with. It is integrated with a model for sand source areas, transport by wind and settling.

Eng. Mohamed Mahmoud Mashroom, the Director of Survey Department of Dubai Municipality commented on this occasion *"We are very proud of the results of this project which is not only useful to our department but also to the whole nation and for the people living here."*

### System Description

Sandstorm modelling is part of the web based Dubai Municipality visibility monitoring system which consists of:

- 15 Automatic Weather Stations (two of them are sea buoys) for visibility and other weather condition monitoring. Majority of stations are equipped with camera
- UDCS/CLDB Database
- Weather prediction model
- Fog prediction model
- Sandstorm prediction model



02.10.2013 10:00 UTC

# Sandstorm Forecasting System

## MicroStep-MIS Success Story



On the left: Decreased visibility due to the sand and dust in the air at Al Mamzar station on 16.03.2014  
 On the right: Normal visibility at Al Mamzar station on 17.03.2014

### Early weather warning mobile app

**Najm Sohail**, is the name of the early weather warning application that visualizes sandstorm forecast in Dubai for up to two days.

Thanks to this mobile application people can now prepare for dust/sand storm conditions in Dubai, 48 hours in advance with just one click on their smart phones.

The mobile app which can be downloaded on all latest versions of Android and iPhone platform aims at helping residents pre-plan their outdoor activities, inform allergy and asthma sufferers from potential health risks and also warn motorists about the visibility conditions on roads.



### Challenge

- Extension of the Dubai Municipality's existing Fog Monitoring and Forecasting System
- Predict the dust event which reduces visibility below 3000 m at least for 2 hours

### Our solution

- Maps of the sand particles and the prediction of chance of the sand event in percentages in Dubai Emirate
- Alerts on low visibility due to sandstorm in advance

### Achievements

- Fully operational sandstorm forecasting and monitoring system which provides sand event forecast 48 hours in advance
- Available as mobile application on smart phones
- Helps to prevent road accidents and take precautions for people who are asthmatic and allergic to dust