

DSS Countermeasure Approaches

There are many approaches for DSS prevention and control countermeasures. Some are short-term, such as forecasting and early warning, and others are long-term, such as source area rehabilitation. It is important to review these countermeasures and make a plan to prioritize the implementation of short, middle, and long-term countermeasures.

Countermeasures at DSS Originating Areas

Various methods are being tested to improve the land surface of DSS originating areas and thus control the blowing up of dust.



Photo 1
A tree windbreak



Photo 2
Straw checkerboards



Photo 3
Recupercating vegetative cover by fencing

Rehabilitating and improving the land surface

- Reducing barren land through reforestation and planting degraded land
- Preventing land surface loosening caused by spring ploughing (the cultivation of perennial crops, etc.)

Controlling the movement and encroachment of sand by wind

- Creating tree windbreaks (Photo 1)
- Reducing ground level wind velocity by inserting straw bundles into the sand in a checkerboard pattern (Photo 2)
- Controlling the movement of sand using creeping plants

Mitigating human impacts

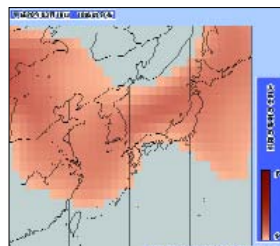
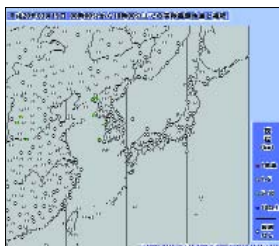
- Rehabilitating vegetation (Photo 3) by erecting a fence around degraded land and restricting the entry of people and domestic animals (grazing ban)
- Laws enforcing the prohibition of land reclamation and felling of trees
- Supporting the resettlement of people from degraded land
- Maximizing the heat efficiency of cooking stoves and the insulation efficiency of houses in order to reduce the cutting of trees for fuel

Improving the environmental capacity of the soil

- Introducing water-saving and water management techniques for the efficient use of water
- Improving land productivity by the application of farm animal manure

DSS Forecasting

In addition to presenting meteorological information on DSS, the Japan Meteorological Agency provides visual maps that show the state of visibility of DSS and next-day prediction maps based on DSS Modeling (see the Column 2) on its homepage.



"DSS Information", from the homepage of the Japan Meteorological Agency
http://www.data.kishou.go.jp/obs-env/kosahp/info_kosa.html

Tripartite Director General Meeting on Dust and Sandstorms among Korea, China and Japan



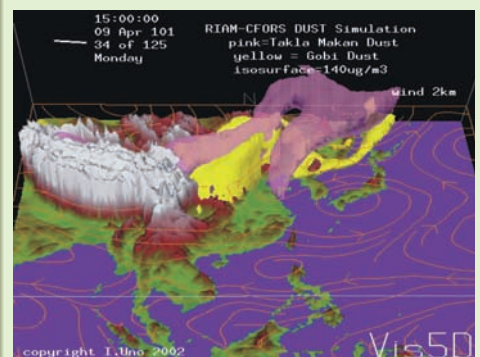
2nd Tripartite Director General Meeting on Dust and Sandstorms among Korea, China and Japan (September 2007, Tokyo)

Based on the agreement of the 8th Tripartite Environment Ministers Meeting among China, Japan and Korea held in 2006, a meeting on the director generals' level between the 3 countries was established in order to promote regional cooperation towards addressing DSS issues in the northeast Asian region. In addition to director generals from the three countries, representatives from Mongolia and relevant international organizations also participate in these meetings, during which exchange of opinions on measures for DSS and joint research on DSS are promoted.

Column 2

DSS Modeling

DSS Modeling is used to forecast and verify an approaching DSS and its concentration by numerical simulations. To elaborate a DSS transfer model, various models such as regional weather, dust emission, movement and diffusion of DSS in the atmosphere, deposition and elimination of DSS particulate, and chemical reaction models are combined. The results of these simulations are used for many purposes: weather information; estimating DSS origin; and forecasting the impact on climate change.



Simulation of an incoming airborne DSS by CFORS of Kyushu University