



DRI's Capabilities and Role in Support of the Salton Sea Ecosystem Restoration Project

Presented by Vic Etyemezian



Summary of DRI Attributes

- ❖ An autonomous, nonprofit unit within the University and Community College System of Nevada
- ❖ Conducts research for a broad range of sponsors: federal and state agencies, and the private sector
- ❖ Addresses a balance of natural and economic resources through applied and basic environmental research
- ❖ Entrepreneurial climate (non-tenure, faculty generate nearly all funding for research)

DRI's Role in Support of the Salton Sea Ecosystem Restoration Project

- Provide peer-review and technical support for issues relating to air quality and dust
 - E.g. currently finalizing peer review for Salton Sea Ecosystem Management Plan (CH2M Hill)
- Field measurement of wind erosion emission potential for restoration alternatives

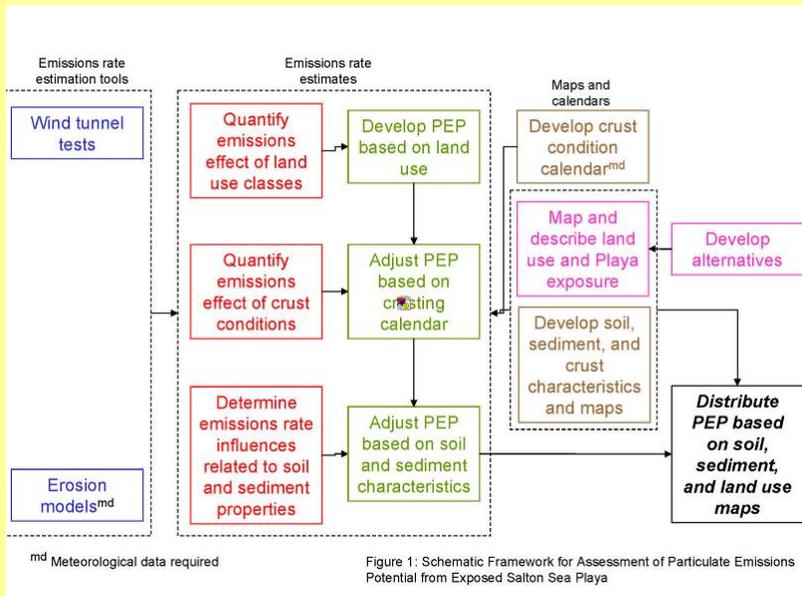
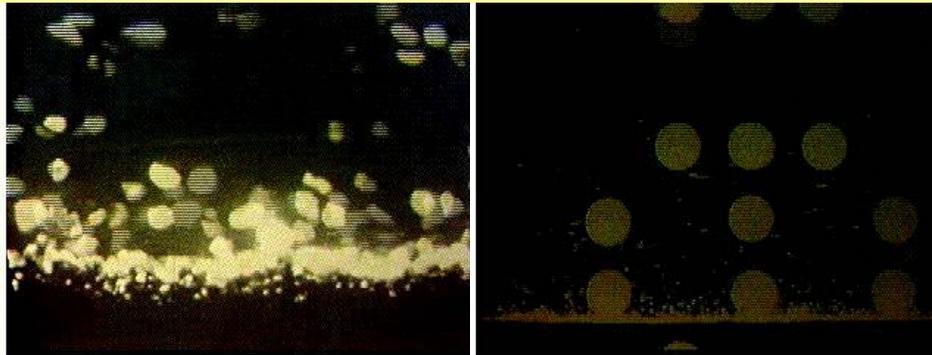
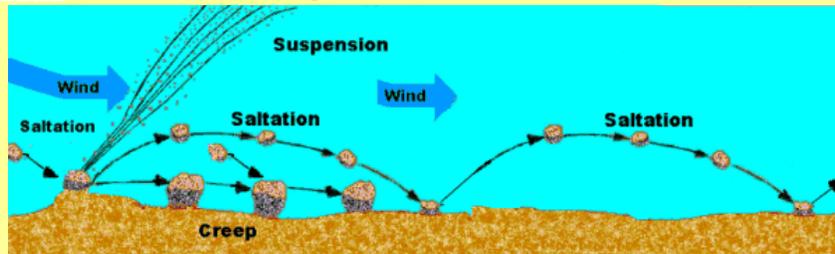


Figure 1: Schematic Framework for Assessment of Particulate Emissions Potential from Exposed Salton Sea Playa



Measurement of Wind Erosion and Dust Emission

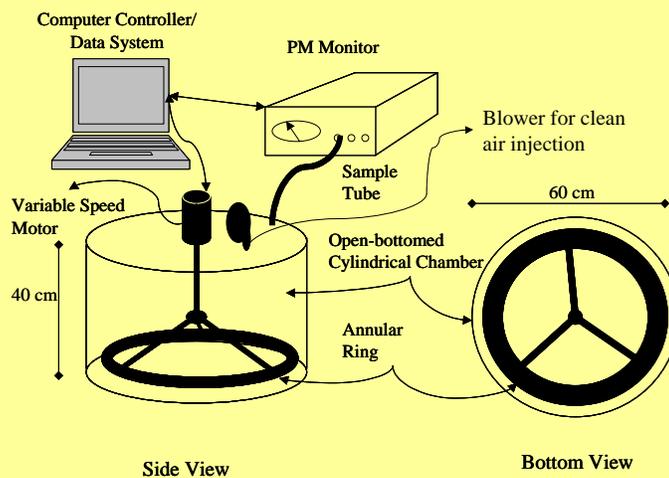
- Dust
 - Suspended particulate matter of geological origin
 - Measured as PM₁₀ (particulate matter with aerodynamic diameter smaller than 10 micrometers)
- Threshold friction velocity , u_*
 - Measure of the force per unit area that surface is subjected to in the plane of the surface (related to surface shear stress)
 - Related to wind speed and surface roughness $u(z) = \frac{u_*}{\kappa} \ln\left(\frac{z}{z_0}\right)$
- Emissions of dust change with shear stress (friction velocity) at surface
- Emissions also depend on surface parameters (texture, moisture, vegetative cover), location, time of year

LWT at Ft. Bliss, TX



- J. Gillies and B. Nickling testing emission flux potential
- Large Wind Tunnel from University of Guelph
- Used at Owens Lake

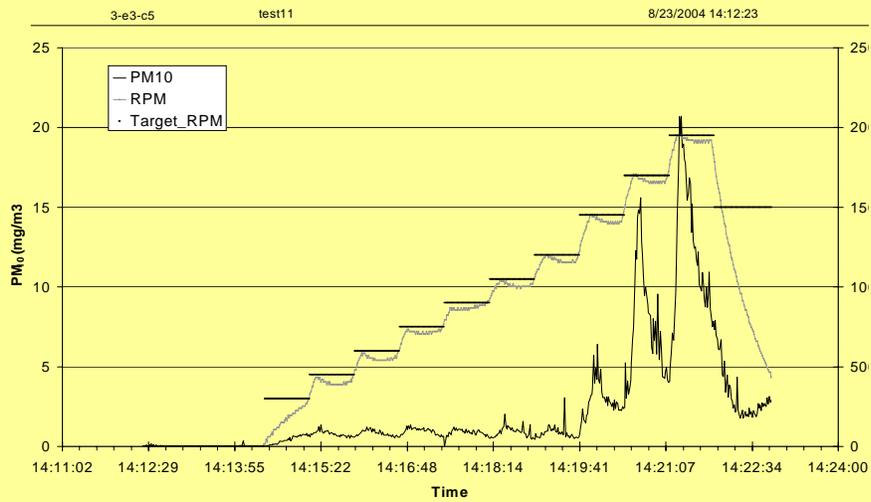
Schematic: PI-SWERL (Portable *In-Situ* Wind EROsion Laboratory)



PI-SWERL



Example PI-SWERL Data





Schedule

- Complete Work Plan–March-April, 2005
- Begin field measurements–April-June, 2005
- Continue field measurements- April–June, 2006