HLWYM HEmails

From: Roland Benke
Sent: Friday, January 20, 2006 6:18 PM
To: Donald Hooper; James Winterle; Keith Compton
Cc: Roland Benke
Subject: 2005 Sunset Crater Airborne Particle Measurements

Don, Jim, & Keith,

Please find the results of the 2005 Sunset Crater Airborne Particle Measurements in the attached file. Measurements were collected in between the abnormally frequent rainfall events in the Flagstaff area during August of 2005. Due to the noted problems with premeasurement checks for our primary instruments and low sensitivity of our secondary instruments, any insights drawn should be considered only as preliminary. Solving the equipment problem with our primary instruments is an important goal for the 2-week block of field preparation activities in April.

Preliminary General Observations
- Airborne particle concentrations over 900-year old tephra was not found to be significantly higher than the concentrations over nonvolcanic deposits.
- The surface disturbance level is important. For 900-year old tephra, however, a significant difference between heavy and light disturbance was not observed.
- Heavy disturbance over nonvolcanic deposits resulted in the two highest recorded airborne particle concentrations.
- Fluvial tephra deposits did not exhibit a characteristic of being more resuspendible than primary or eolian tephra deposits.

Let me know if you are interested in discussing these results further.

Roland

AirborneParticleMeas_SunsetCra...

Hearing Identifier: HLW_YuccaMountain_Hold_EX
Email Number: 1150

Mail Envelope Properties (rbenke@cnwra.swri.edu20060120181800)

Subject: 2005 Sunset Crater Airborne Particle Measurements
Sent Date: 1/20/2006 6:18:15 PM
Received Date: 1/20/2006 6:18:00 PM
From: Roland Benke

Created By: rbenke@cnwra.swri.edu

Recipients:
"Roland Benke" <rbenke@cnwra.swri.edu>
Tracking Status: None
"Donald Hooper" <dhooper@cnwra.swri.edu>
Tracking Status: None
"James Winterle" <jwinterle@cnwra.swri.edu>
Tracking Status: None
"Keith Compton" <Keith.Compton@nrc.gov>
Tracking Status: None

Post Office:

Files	**Size**	**Date & Time**
MESSAGE	1276	1/20/2006 6:18:00 PM
AirborneParticleMeas_SunsetCrater2005.wpd	30515	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Source Region	Surface Material Type (Volcanic or Nonvolcanic)	TPA Parameters Related to Measurement	Surface Disturbing Activity Level	August 2005 Measurements		
				Total Airborne Particle Concentration (mg/m^3)	Measurement Uncertainty (mg/m^3)	Notes
Initial deposit (Primary tephra-fall deposit)	Nonvolcanic, Undisturbed soil	AirborneMassLoadOutsideHeavyDisturbance[g/m3] AirborneMassLoadOutsideLightDisturbance[g/m3]	Ambient (no human activity)	--	–	Not acquired
			Light disturbance	--	–	Not acquired
			Heavy disturbance	9.2	3.6	Estimated Minimum Detectable Concentration (MDC) is 16.8 mg/m^3
	Volcanic, Undisturbed tephra deposit (relatively unvegetated)	WeightingFactorInitialDeposit[] RateOfReductionOfMassLoadingFactor[1/yr] AirborneMassLoadAboveFreshAshBlanketHeavyDisturbance[g/m3] AirborneMassLoadAboveFreshAshBlanketLightDisturbance[g/m3]	Ambient (no human activity)	1.3	0.7	Estimated MDC is 3.1 mg/m^3
			Light disturbance	2.4	3.6	Estimated MDC is 16.8 mg/m^3
			Heavy disturbance	*2.6*	*0.2*	*Premeasurement instrument checks were outside recommended range*
Fluvial deposit	Nonvolcanic, In wash, over sediment	AirborneMassLoadOutsideHeavyDisturbance[g/m3] AirborneMassLoadOutsideLightDisturbance[g/m3]	Ambient (no human activity)	0.7	0.7	Estimated MDC is 3.1 mg/m^3
			Light disturbance	*1.3*	*0.2*	*Premeasurement instrument checks were outside recommended range*
			Heavy disturbance	*21.1*	*0.7*	*Premeasurement instrument checks were outside recommended range*
	Volcanic, In wash, over tephra deposited mainly from fluvial remobilization	WeightingFactorFluvial[] RateOfReductionOfMassLoadingFactor[1/yr] AirborneMassLoadAboveFreshAshBlanketHeavyDisturbance[g/m3] AirborneMassLoadAboveFreshAshBlanketLightDisturbance[g/m3]	Ambient (no human activity)	*0.9*	*0.4*	*Improper pump flow rate used* *Estimated MDC is 2.0 mg/m^3*
			Light disturbance	*0.39*	*0.05*	*Premeasurement instrument checks were outside recommended range*
			Heavy disturbance	*1.7*	*0.2*	*Premeasurement instrument checks were outside recommended range*
				1.9	1.8	Estimated MDC is 8.3 mg/m^3

Eolian deposit	Nonvolcanic, Dune consisting of nonvolcanic material	AirborneMassLoadOutsideHeavyDisturbance[g/m3] AirborneMassLoadOutsideLightDisturbance[g/m3]	Ambient (no human activity)	0.3	0.7	Estimated MDC is 3.1 mg/m^3
			Light disturbance	–	–	Not acquired
			Heavy disturbance	–	–	Not acquired
	Volcanic, Dune with the presence of tephra deposited mainly from eolian remobilization	WeightingFactorEolian[] RateOfReductionOfMassLoadingFactor[1/yr] AirborneMassLoadAboveFreshAshBlanketHeavyDisturbance[g/m3] AirborneMassLoadAboveFreshAshBlanketLightDisturbance[g/m3]	Ambient (no human activity)	1.8	0.7	Estimated MDC is 3.4 mg/m^3
			Light disturbance	6.8	4.0	Estimated MDC is 18.4 mg/m^3
			Heavy disturbance	5.3	3.7	Estimated MDC is 17.2 mg/m^3