

Preliminary Investigation of Microclimate on the Rio Salado Project

- Introduction
- Context
- The Class Project - Fall, 2003
- Temperature, Dew Point Results
- Future Studies

Context

- CAP LTER (urban ecology)
- CSRUR (Urban Climate)
- UEM (remote sensing of cities)
- NOAA (applications in meteorology),
General mission of ASU for partnering
- City of Tempe/ASU Tempe Town Lake
monitoring

October Nighttime Thermal Image

(Courtesy: Will Stefanov, Geological Sciences, ASU)







Sky Harbor Airport



- The Class Project - Fall,
2003

Acknowledgments

We thank many people:

- *Walt Kinsler, City of Phoenix for permissions and great on-site help and logistics*
- *J. Poznik and J. Stromberg, ASU Plant Biologists for advice/permissions*
- *Nancy Selover, Ass't State Climatologist, ASU for data*
- *Class and soul mates – W. Bigler, J. Callaway, A. Church, M. Conley, D. Hartz, B. Hedquist, H. Kinkade-Levario, S. Roy, and J. Zhang for class ideas, transportation, measurement, analysis*
- *Department of Geography, ASU for climate equipment*









Sites

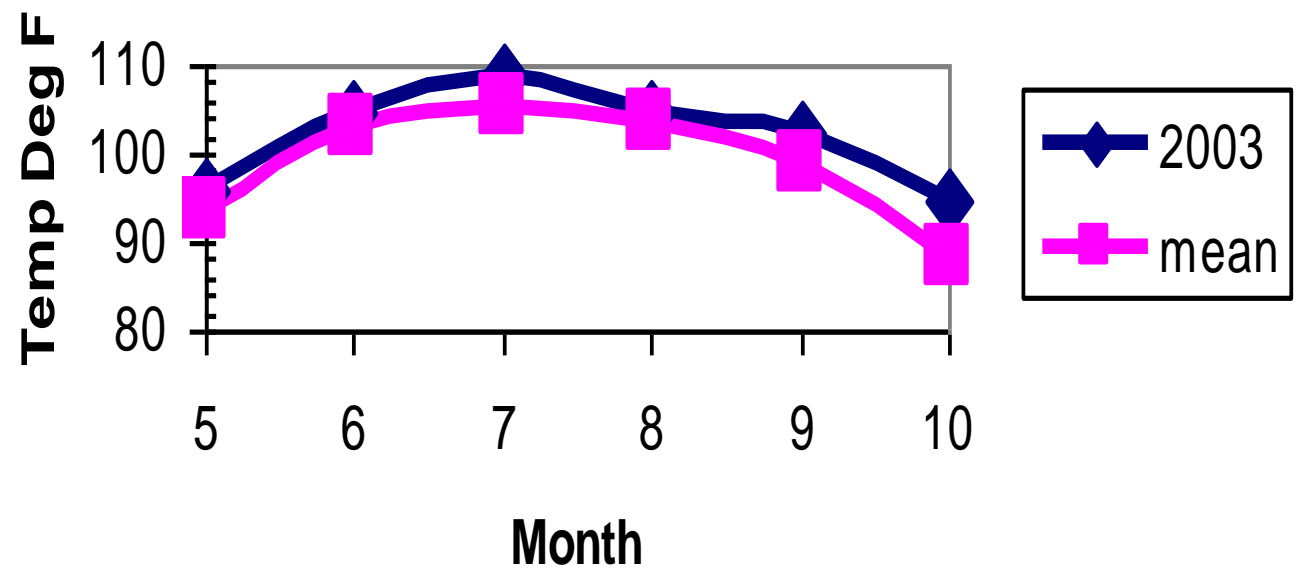
<i>Hobo Serial #</i>	<i>Hobo Height (m)</i>	<i>Species</i>	<i>Date Put In</i>	<i>Height (m)</i>	<i>Width (m)</i>
382441	1.65	Mesquite	10/17/2003	1.95	3.2
277122	1.65	Cottonwd	10/17/2003	2.11	2.15
330585	1.65	Cottonwd	10/17/2003	3	2.6

Site Plan Map

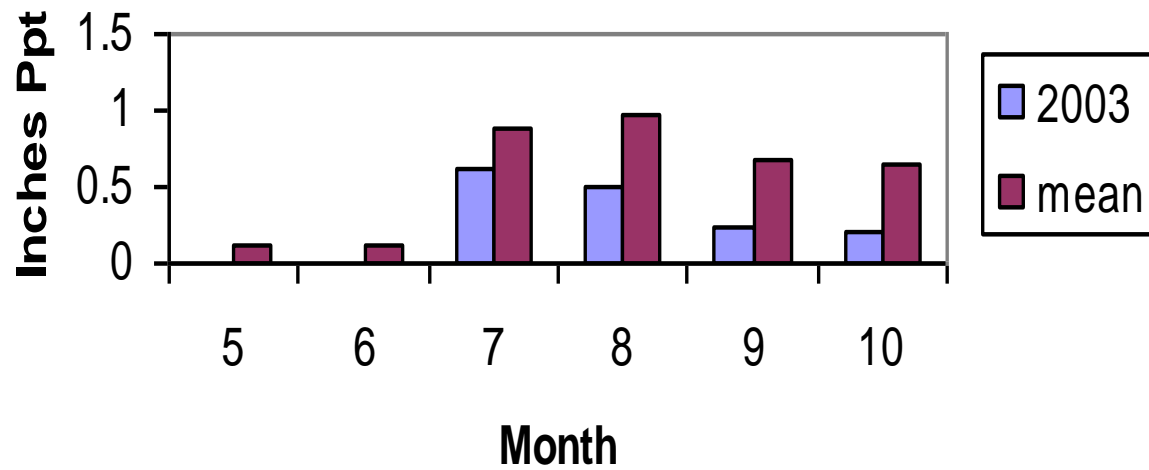


- We observed air temperatures, dew points, soil temperatures on site from October 17th -November 14th
- We took soil moisture samples beginning and end of the period

Maximum Monthly Temp



Monthly Precipitation

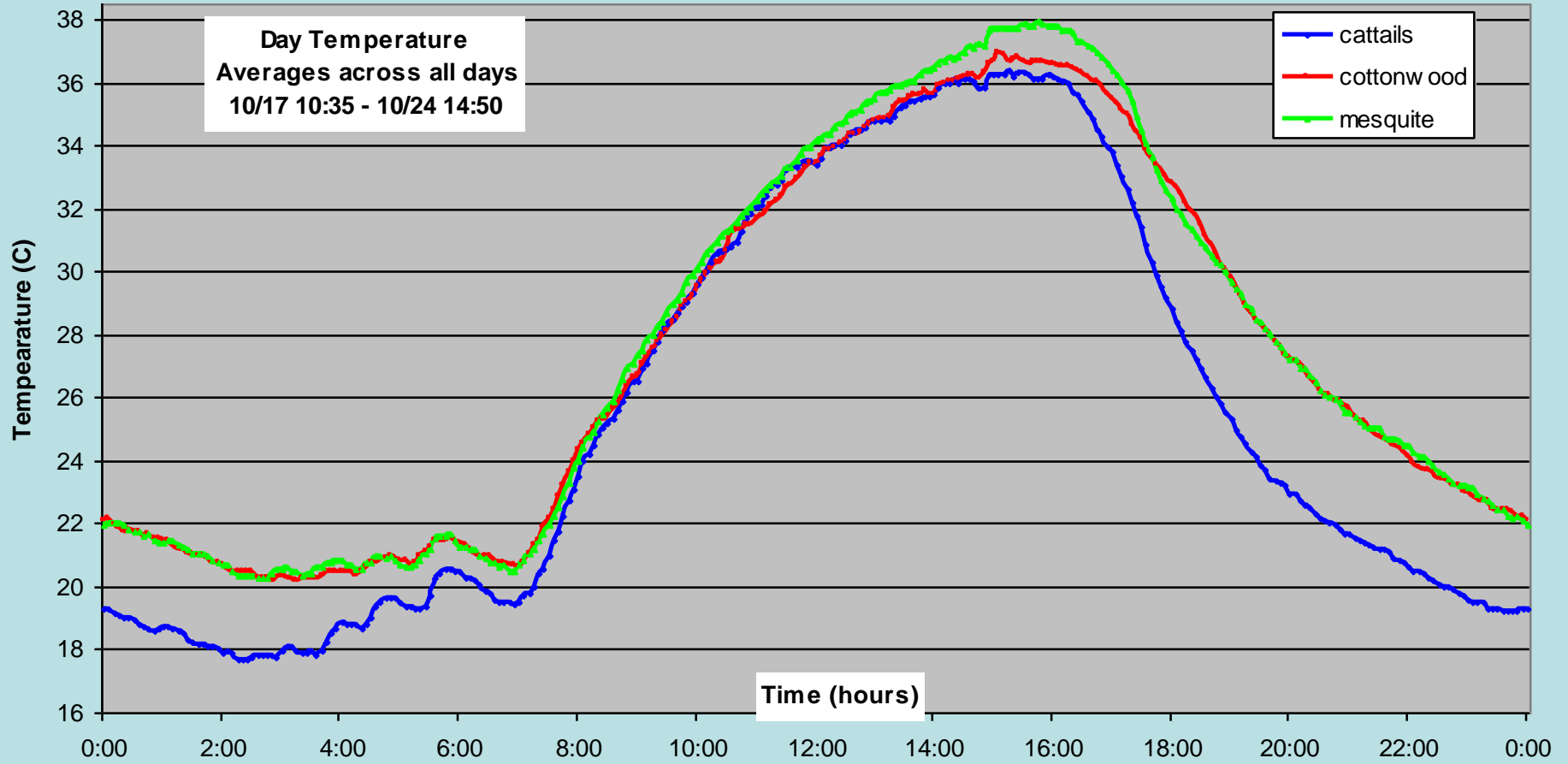


- Temperature, Dew Point Results

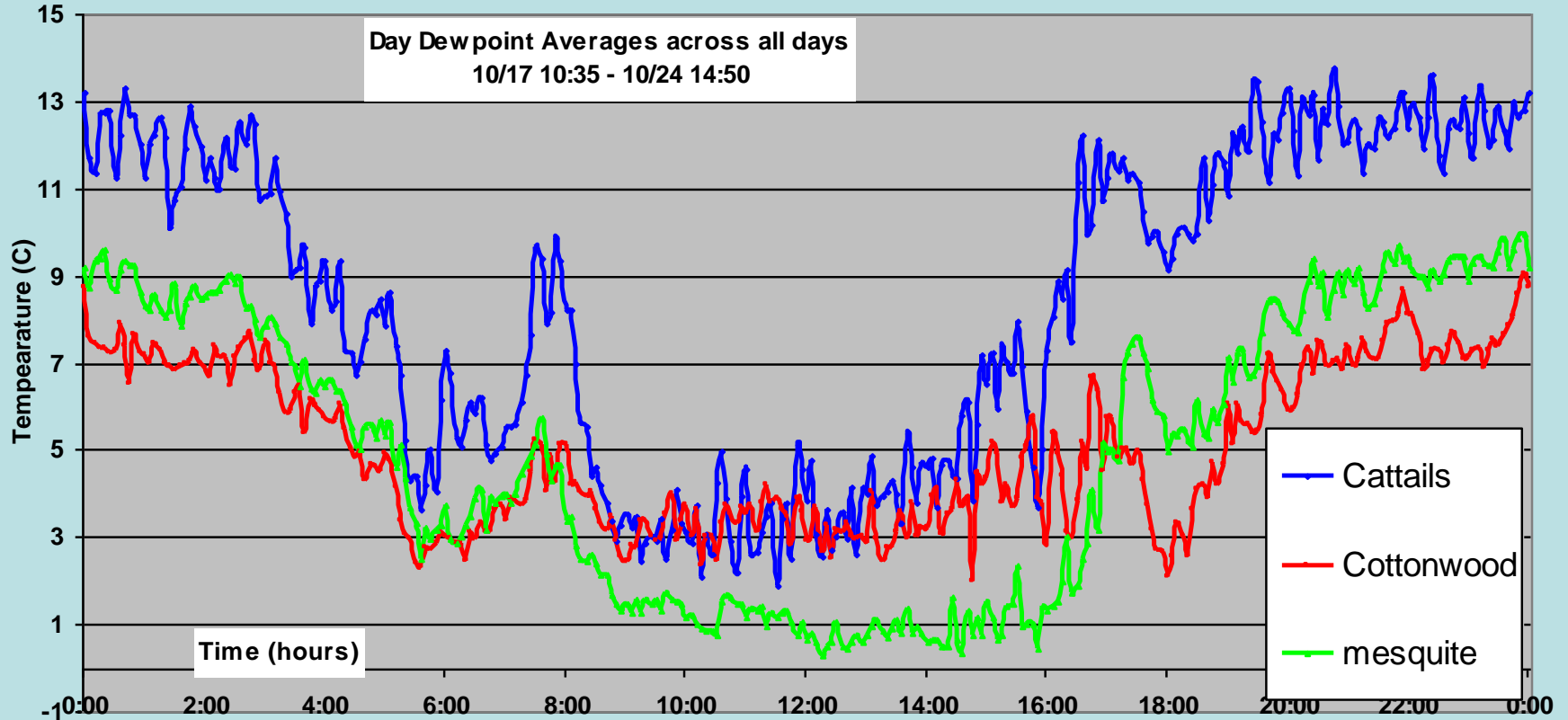
Temperature/Dew Point Logger



Temps at Rio Site



Dew Pts at Rio Site



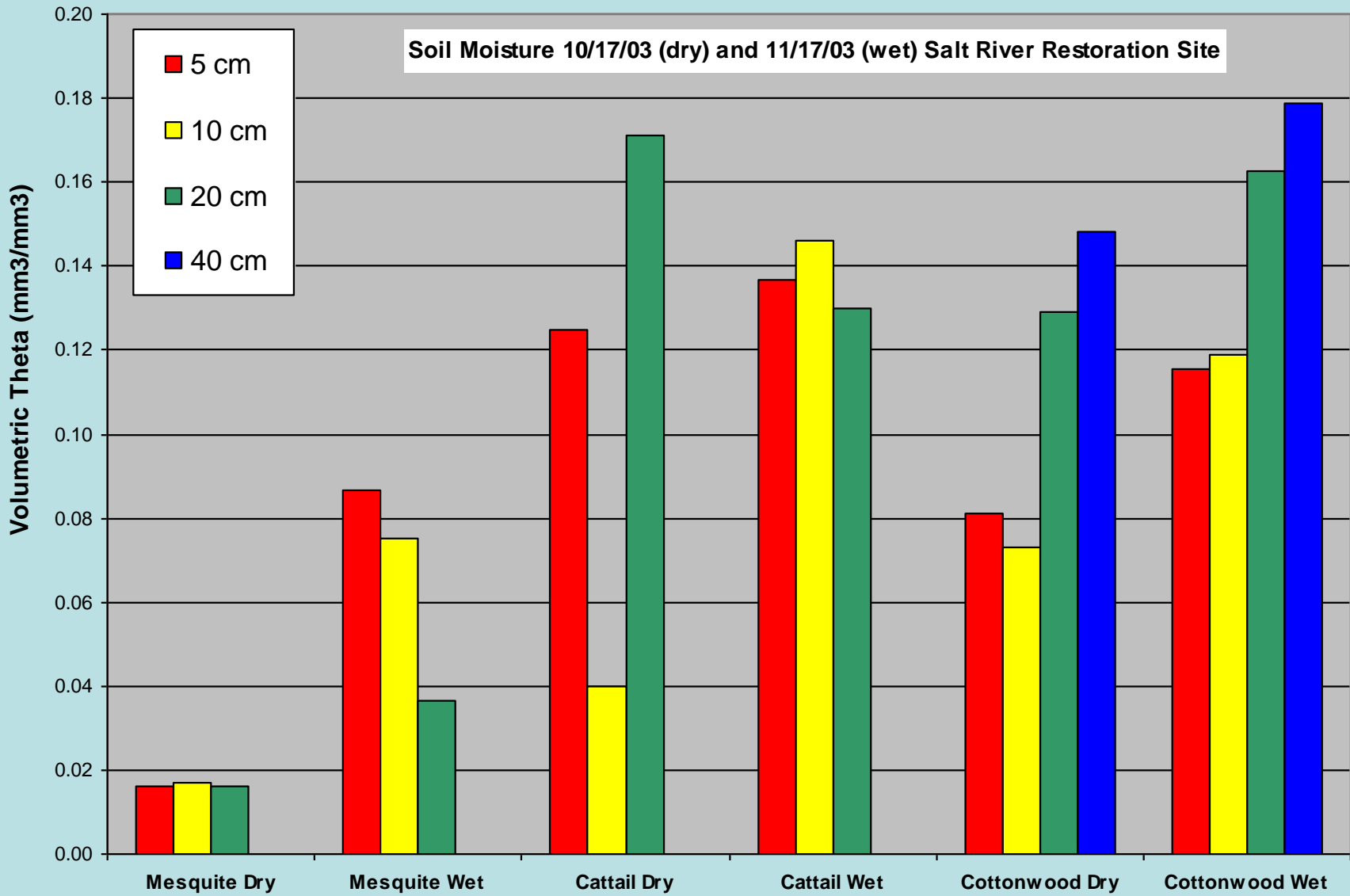
Correlations - Temps

	<i>Cattail</i>	<i>Cottonwood</i>	<i>Mesquite</i>	<i>Encanto</i>	<i>Mesa</i>	<i>Buckye</i>
<i>Cattail</i>	1.0000					
<i>Cottonwood</i>	0.9806	1.0000				
<i>Mesquite</i>	0.9816	0.9987	1.0000			
<i>Encanto</i>	0.9866	0.9793	0.9797	1.0000		
<i>Mesa</i>	0.9496	0.9870	0.9863	0.9575	1.0000	
<i>Buckye</i>	0.8858	0.8893	0.8878	0.9032	0.8789	1.0000

Correlations - Dew Pts

Dew Points

	<i>Cattail</i>	<i>Cottonwood</i>	<i>Mesquite</i>	<i>Encanto</i>	<i>Mesa</i>	<i>Buckye</i>
<i>Cattail</i>	1.0000					
<i>Cottonwood</i>	0.9115	1.0000				
<i>Mesquite</i>	0.9527	0.9765	1.0000			
<i>Encanto</i>	0.7092	0.8427	0.7877	1.0000		
<i>Mesa</i>	0.8195	0.9474	0.9260	0.8339	1.0000	
<i>Buckye</i>	0.6847	0.8101	0.7566	0.9854	0.7986	1.0000



- **Future Studies:**
 - Links to models
 - Ideas on monitoring regionally