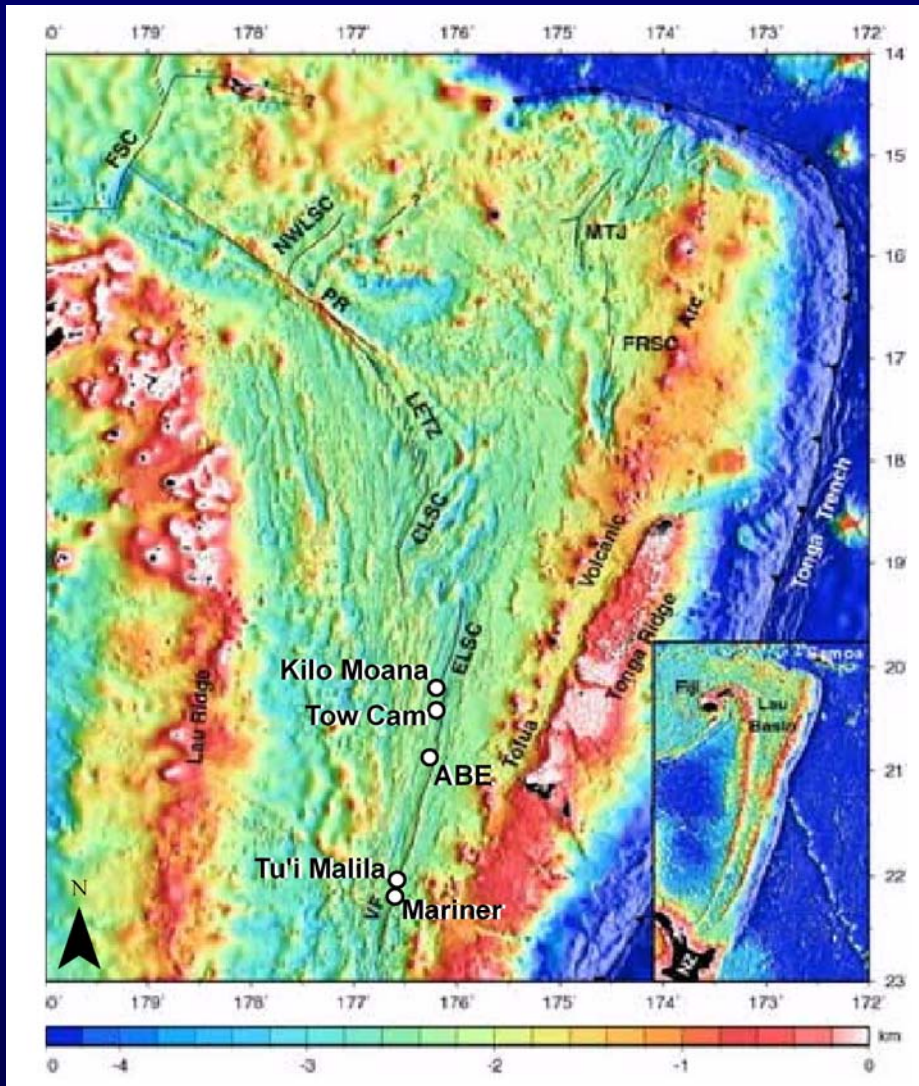


**Using Voltammetric Au/Hg Microelectrodes
for the *In Situ* Characterization of Habitat
Chemistry at East Lau Spreading Center
Diffuse Flow Areas**

Shufen Ma

**Dr. George W. Luther Lab
University of Delaware
College of Marine and Earth Studies**

Lau Basin 2006

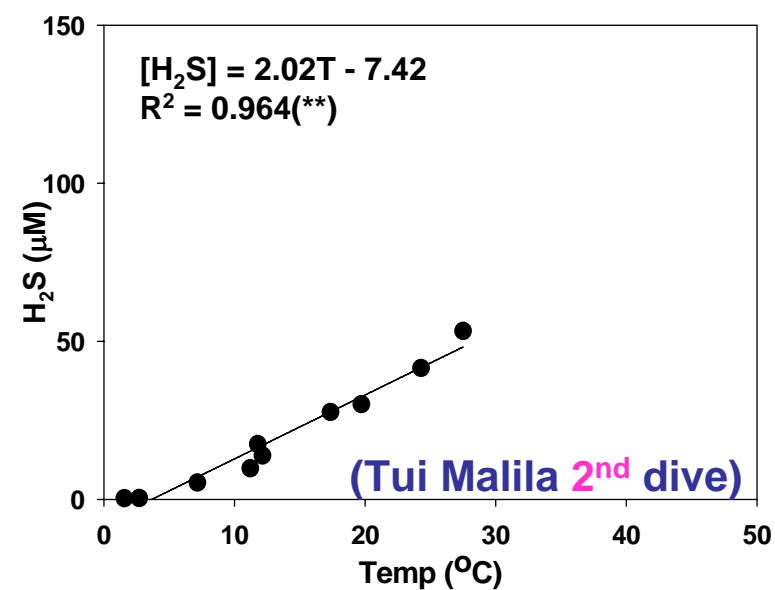
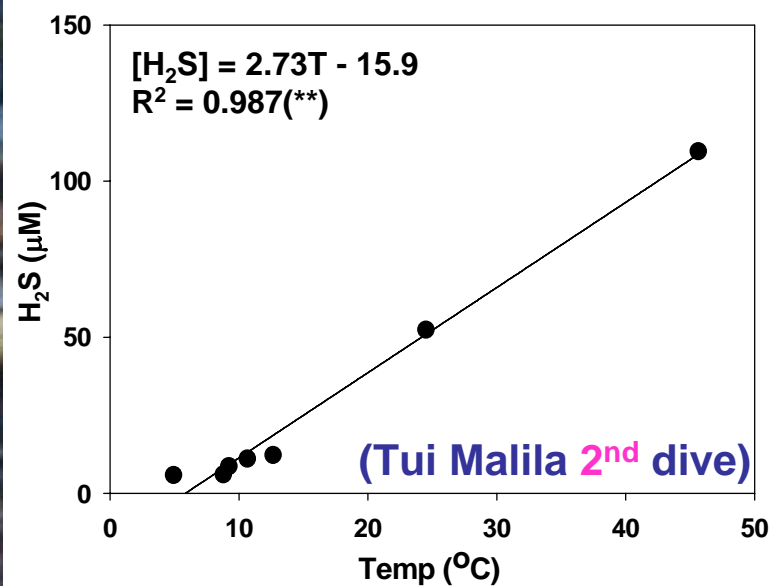
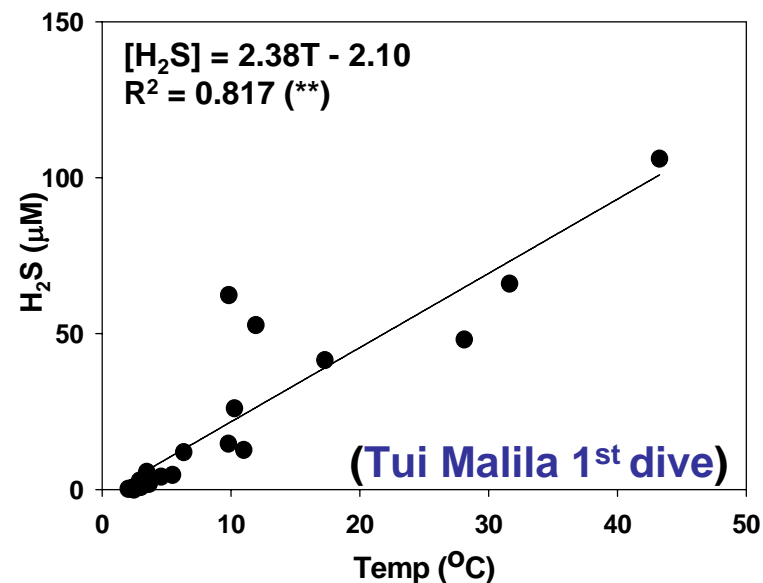
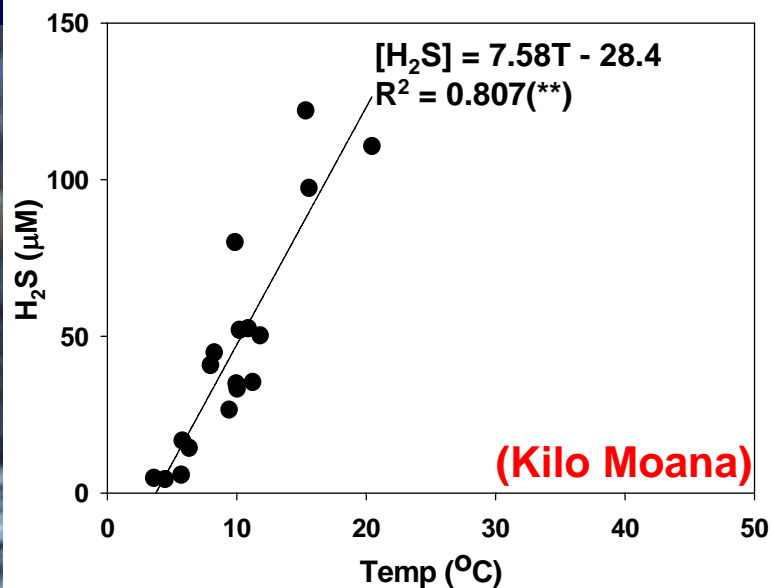


Over ten thousand measurements

Chemistry varied among sites and habitats

[H₂S] correlated with T

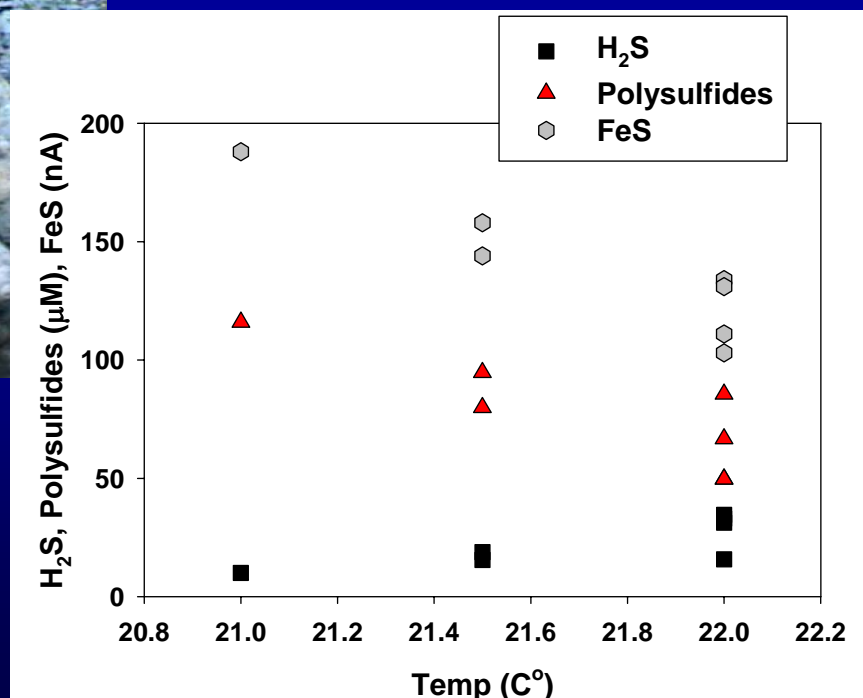
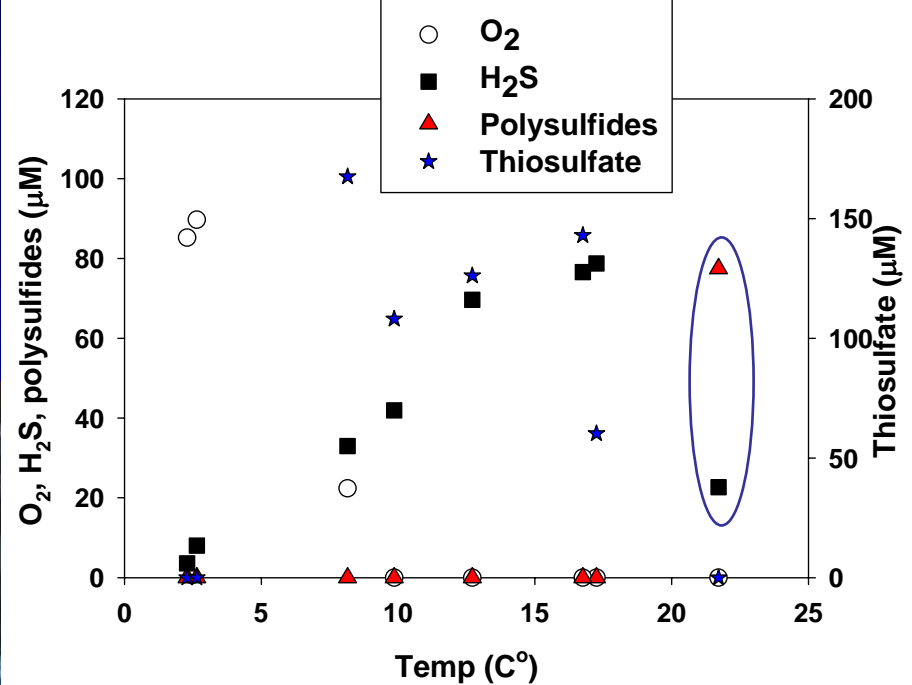
On organism scale



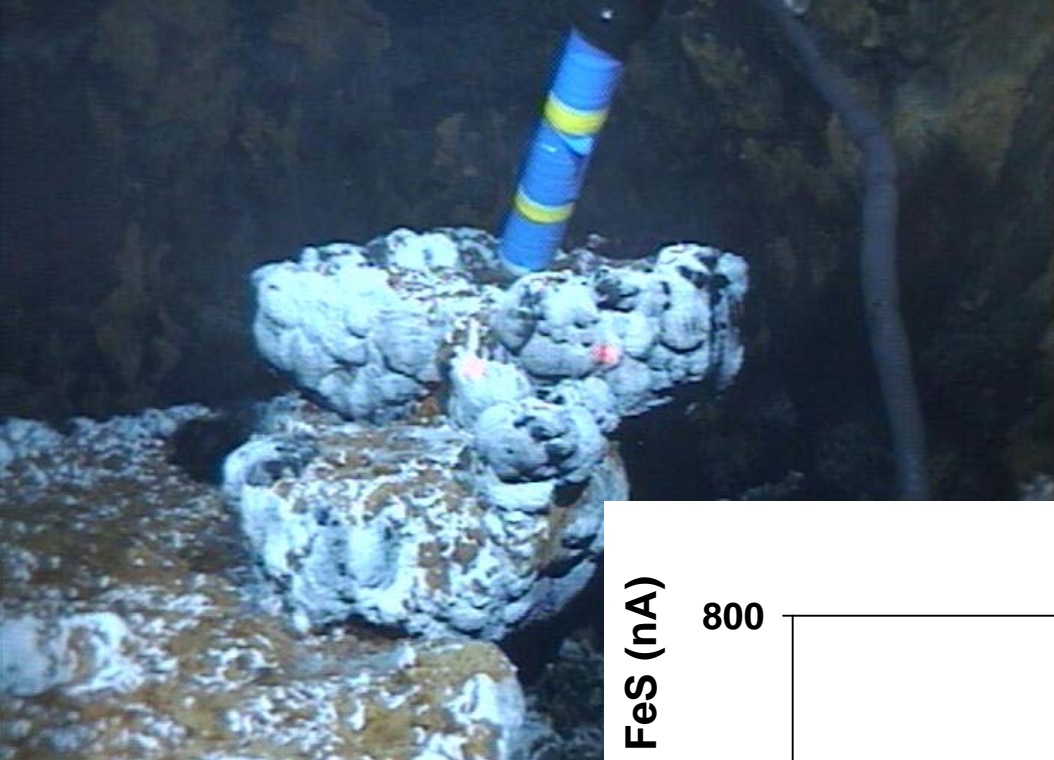
On basin wide scale

Site	Dive	Points	Scans	[H ₂ S] vs Temp.		North
Kilo Moana	J2-230	181	1702	[H ₂ S] μM = 5.43T - 11.5	R ² = 0.811 (**)	
	J2-235	167	1766	[H ₂ S] μM = 5.68T - 13.8	R ² = 0.814 (**)	
Tow Cam	J2-233	144	1076	[H ₂ S] μM = 4.30T - 6.57	R ² = 0.699 (**)	
	J2-240	68	642	[H ₂ S] μM = 5.69T - 7.97	R ² = 0.894 (**)	
ABE	J2-234	233	1625	[H ₂ S] μM = 2.74T - 6.67	R ² = 0.649 (**)	
	J2-236	39	362	[H ₂ S] μM = 3.34T - 4.65	R ² = 0.839 (**)	
	J2-237	32	315	[H ₂ S] μM = 2.09T - 0.307	R ² = 0.147 (*)	
Tu'i Malila	J2-232	201	1788	[H ₂ S] μM = 1.93T - 5.54	R ² = 0.688 (**)	
	J2-239	87	768	[H ₂ S] μM = 1.97T - 3.03	R ² = 0.710 (**)	
Mariner	J2-238	59	528	[H ₂ S] μM = 0.128T + 1.29	R ² = 0.026	

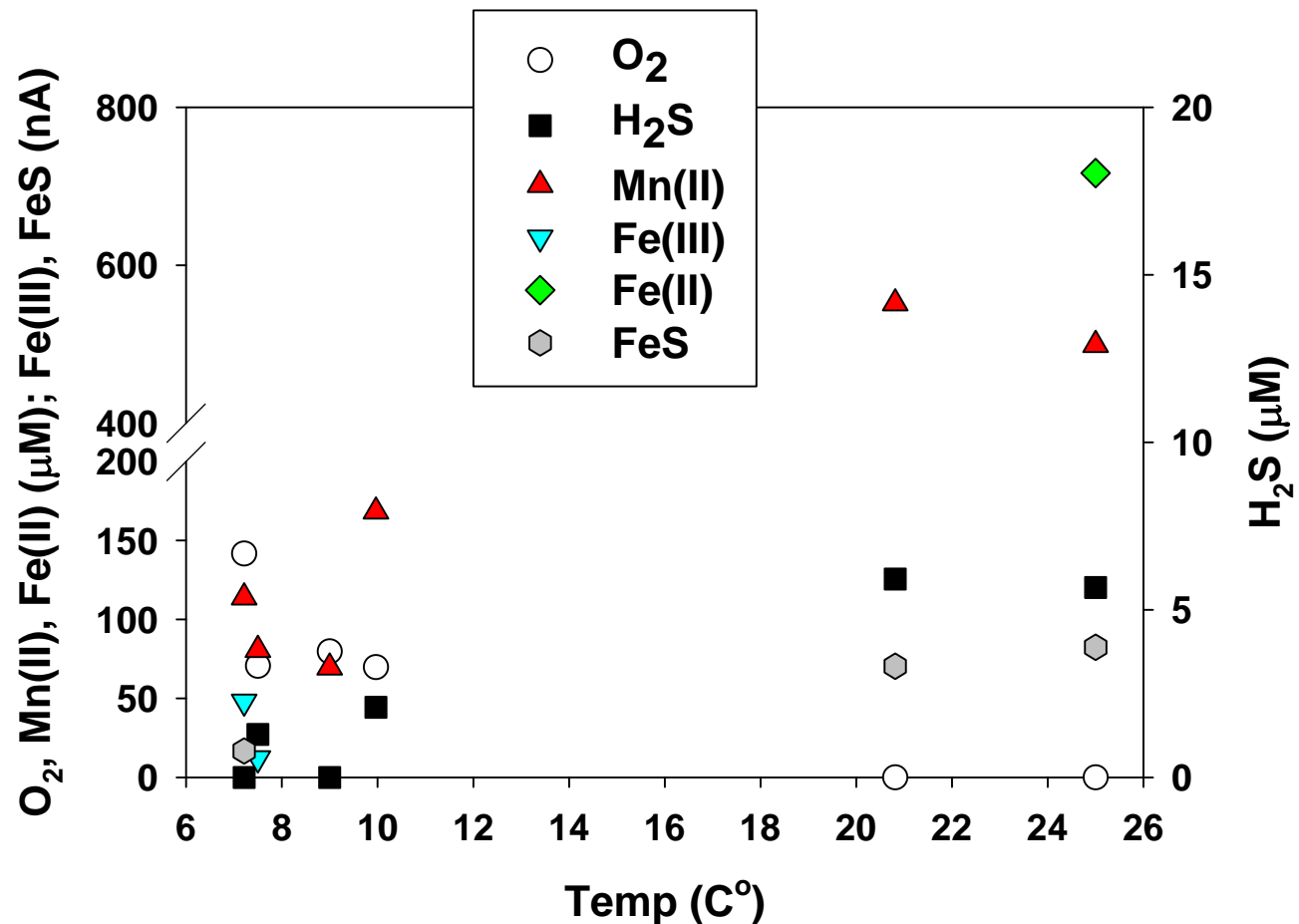
S compounds at Tow Cam Tubeworm site



Metals at Mariner



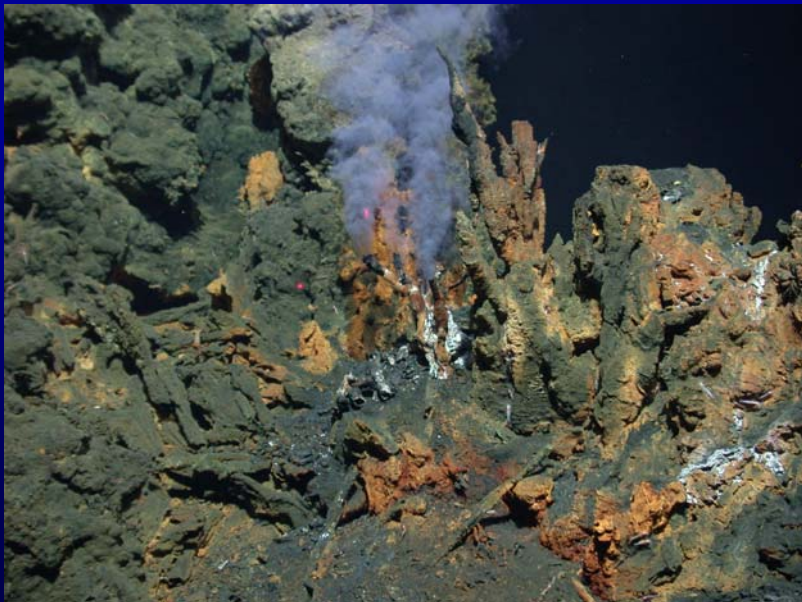
low H_2S ,
high Mn, Fe



Chemical speciation affects hydrothermal vent ecology and biology



- Diffuse flow varied spatially and temporally
- On organism and basin wide scales
- High metal content in Mariner



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Mullaugh, Mustafa Yucel**

Dr. Chuck Fisher group

Dr. Stacy Kim group

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