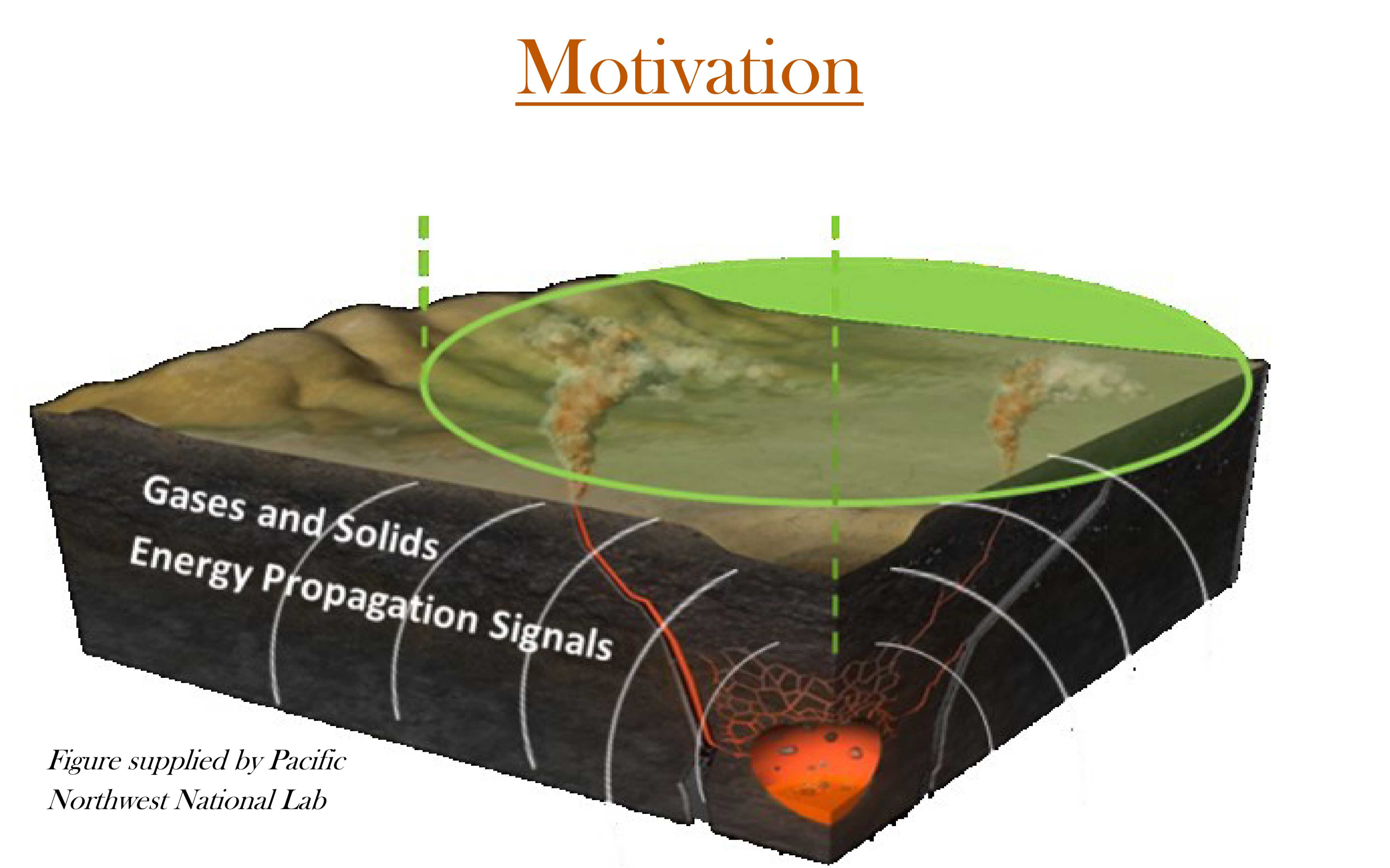


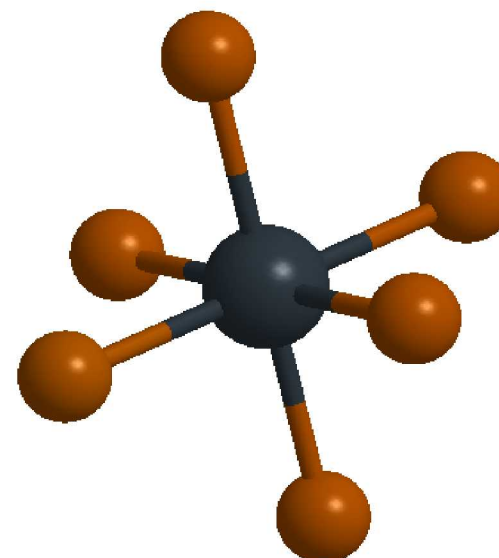
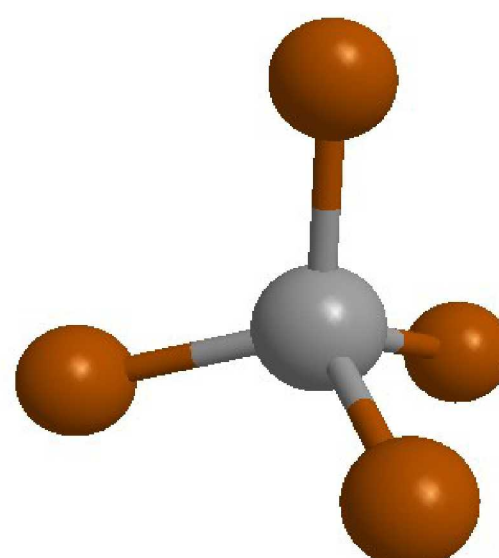
# Evaluation of Carbon Tetrafluoride as a Radioxenon Surrogate for Underground Gas Transport

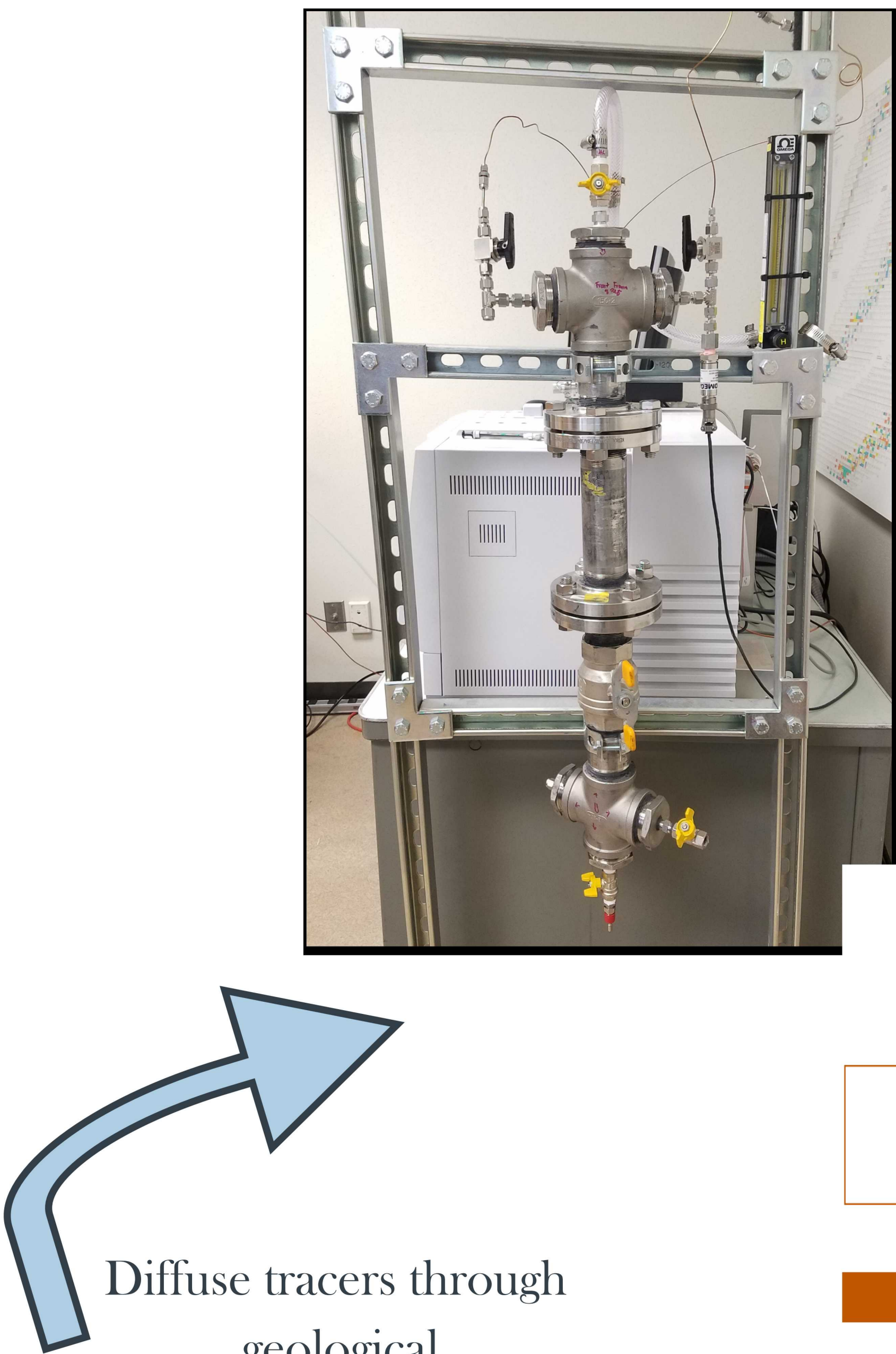
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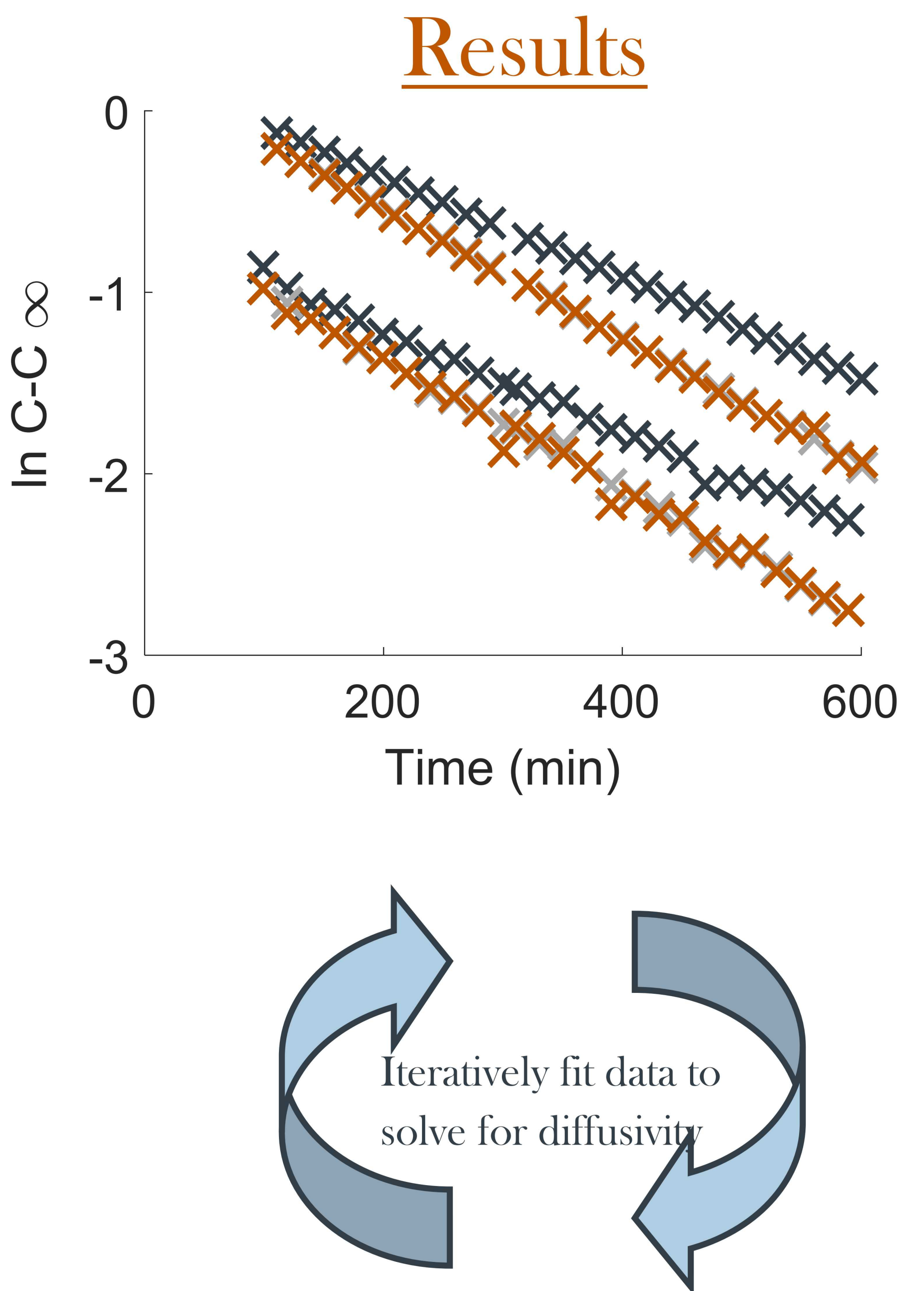
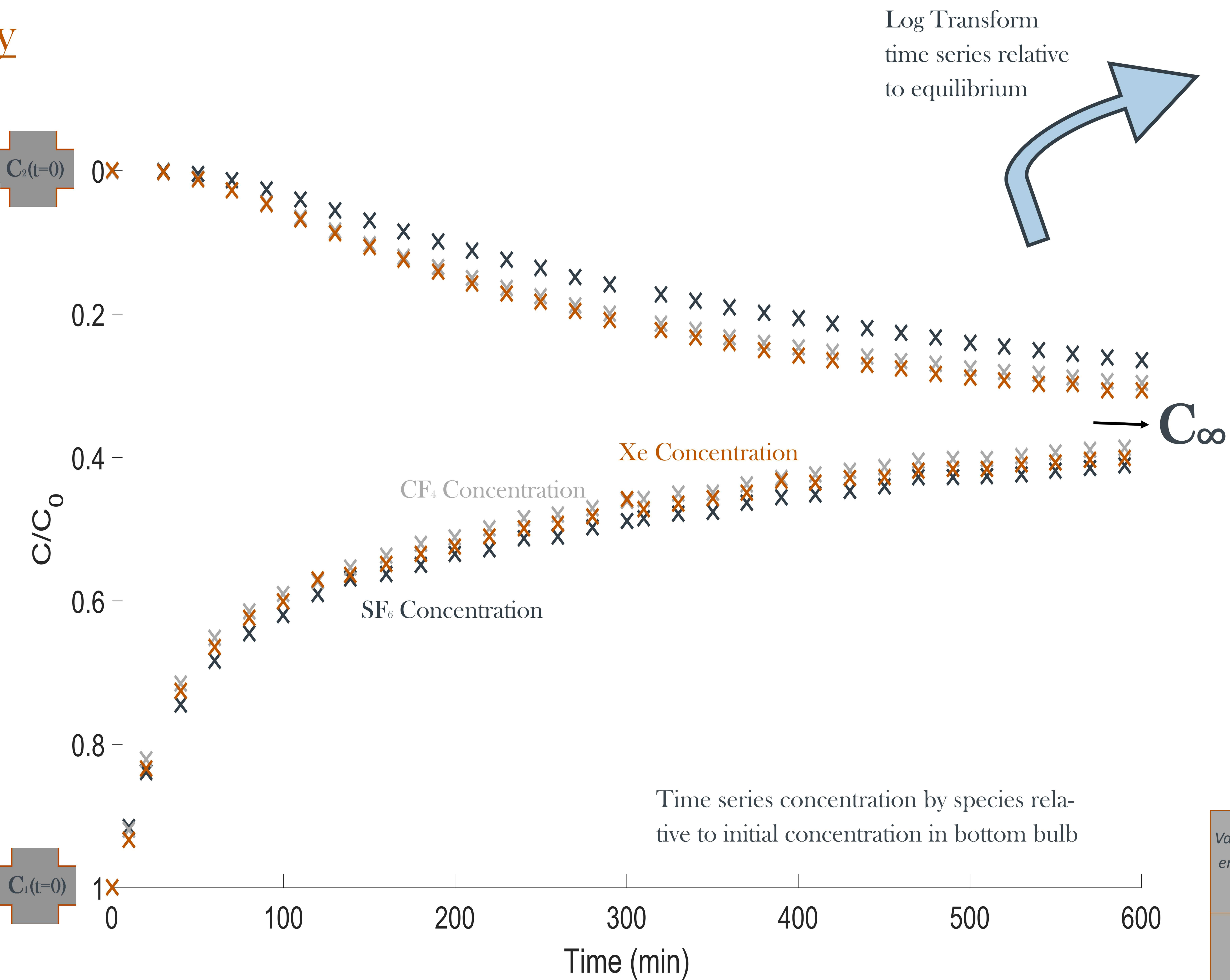
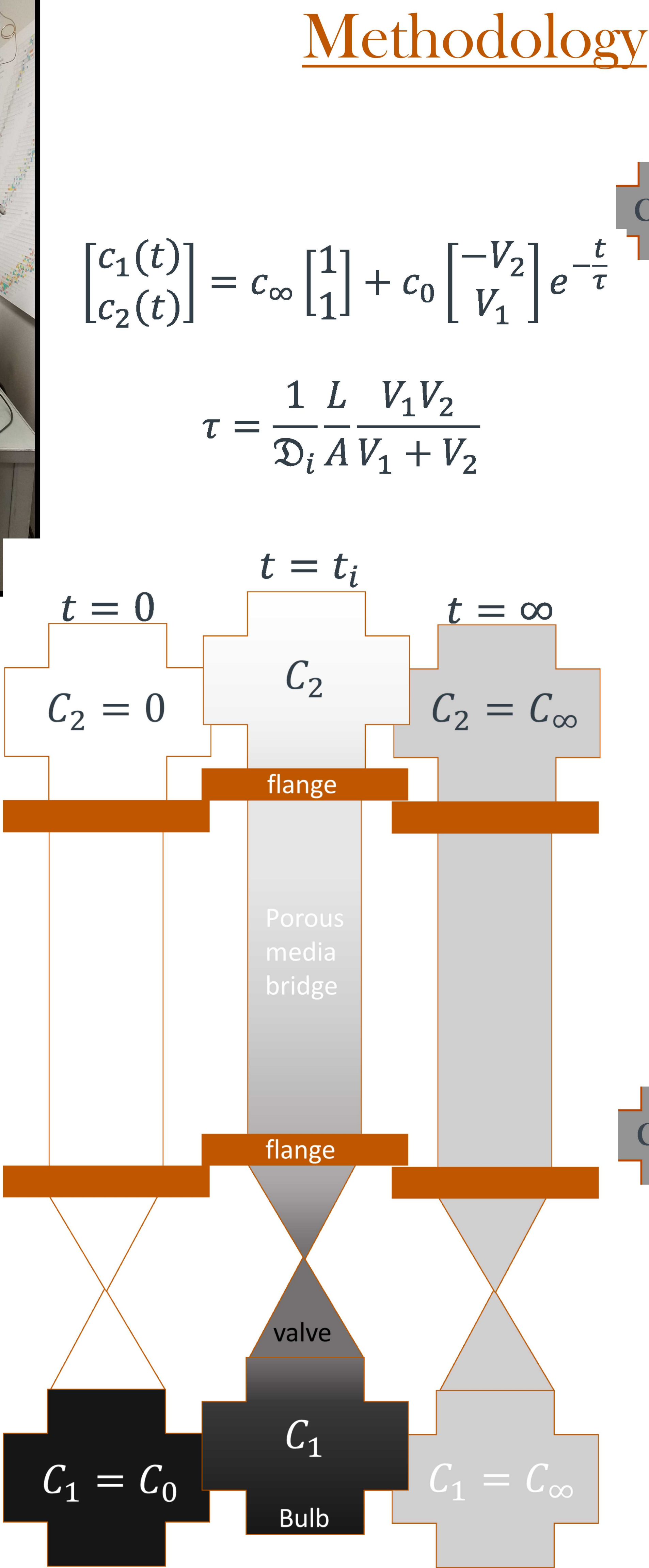


$$\frac{\partial}{\partial t} c_i = - \nabla \cdot u_i c_i + \nabla \cdot \mathcal{D}_i \nabla c_i$$

	<div>54 <b>Xe</b> Xenon 131.29</div> <div></div> <div></div>		
Critical Temperature (K)	289.733	227.5	318.72
Background Concentration	87 ppb	trace	trace
Diffusivity in N <sub>2</sub> (cm <sup>2</sup> /s)	0.125	0.0949	?
Greenhouse Potential (CO <sub>2</sub> equivalent)	0	22,800	7,350



Diffuse tracers through geological material



### Acknowledgements

This work was sponsored by the U.S. Defense Threat Reduction Agency (Award #HDTRA1-12-1-0009).

Values represent average across all trials	Xe	CF <sub>4</sub>	SF <sub>6</sub>
$\tau$ (minutes)	280±20	290±20	370±10
$D_i \epsilon / q^2$ (cm <sup>2</sup> /s)	0.033±.002	0.035±.002	0.025±.001
Relative to Xe (%)	-	97.±2	78±2