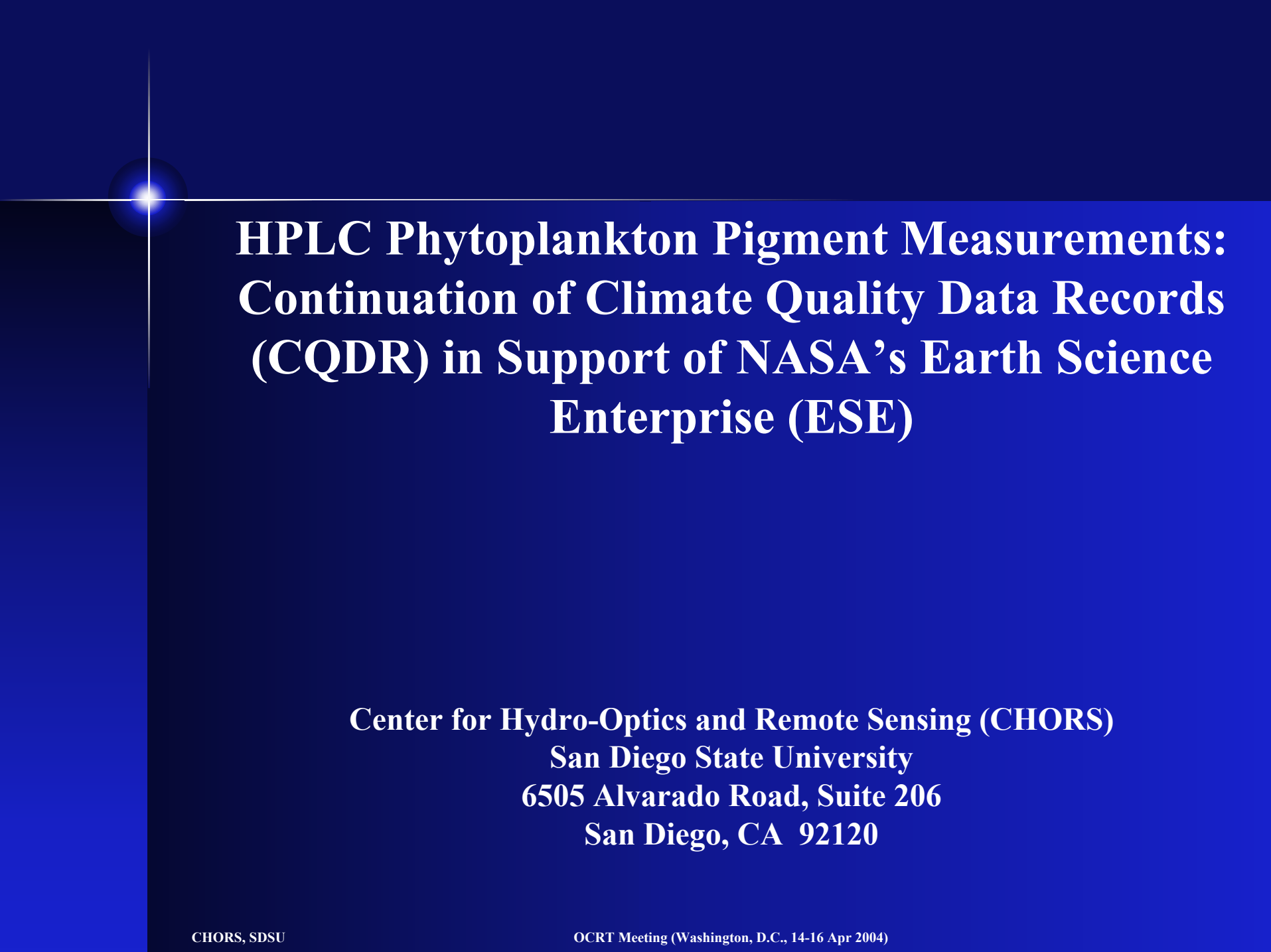




HPLC Phytoplankton Pigment Measurements: Continuation of Climate Quality Data Records (CQDR) in Support of NASA's Earth Science Enterprise (ESE)

**Center for Hydro-Optics and Remote Sensing (CHORS)
San Diego State University
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HPLC Phytoplankton Pigment Protocols

(Bidigare *et al.*, 2003; NASA/TM-2003-211621/Rev 4 - Vol. V)

SIMBIOS Project - 9,400 samples in 3 years (See Poster)

1. Wright *et al.* (1991) C₁₈ Method

**** Channels ratio (436 & 450nm) for mono- and divinyl chl *a***

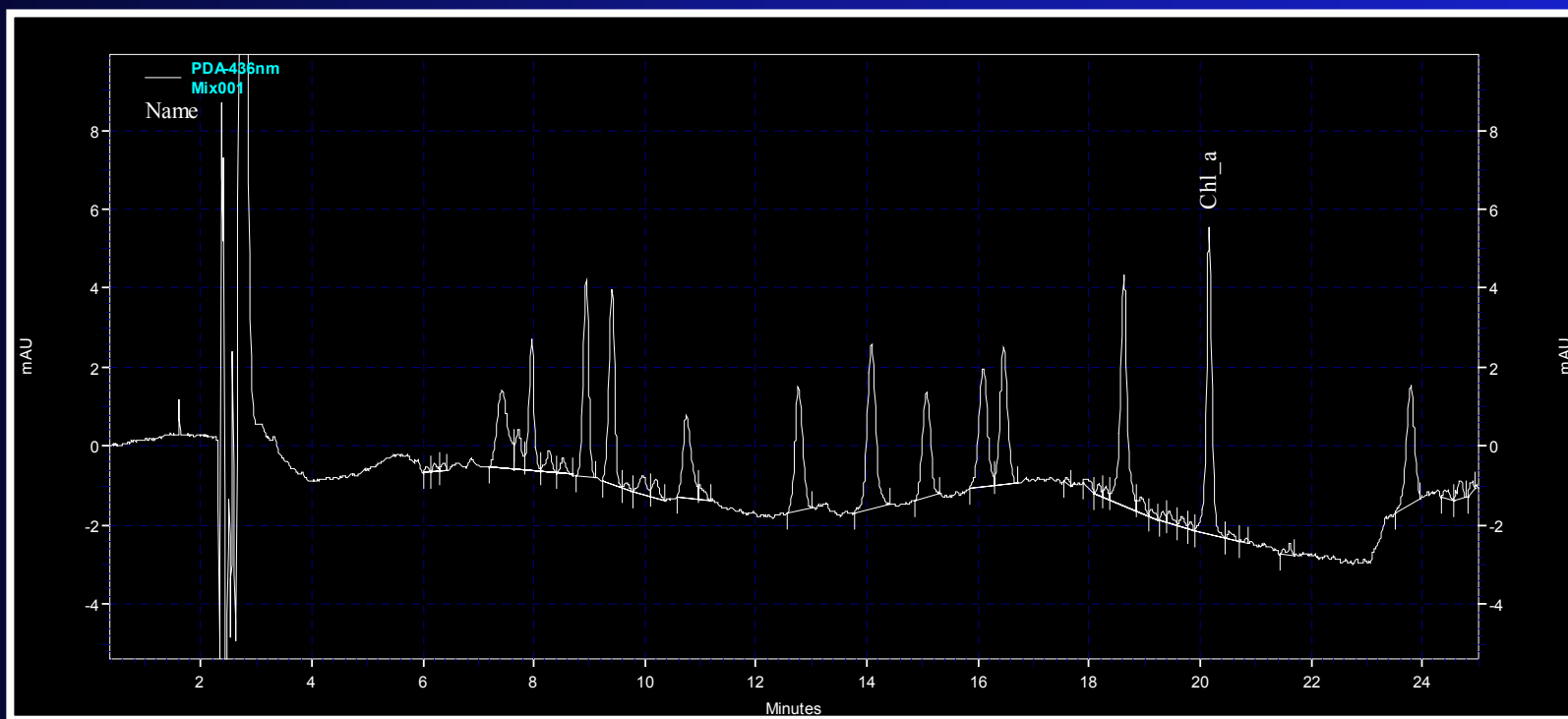
EOS Terra & Aqua Data Products Program - 3,000 samples per year

**** Physically separate mono- and divinyl chl *a***

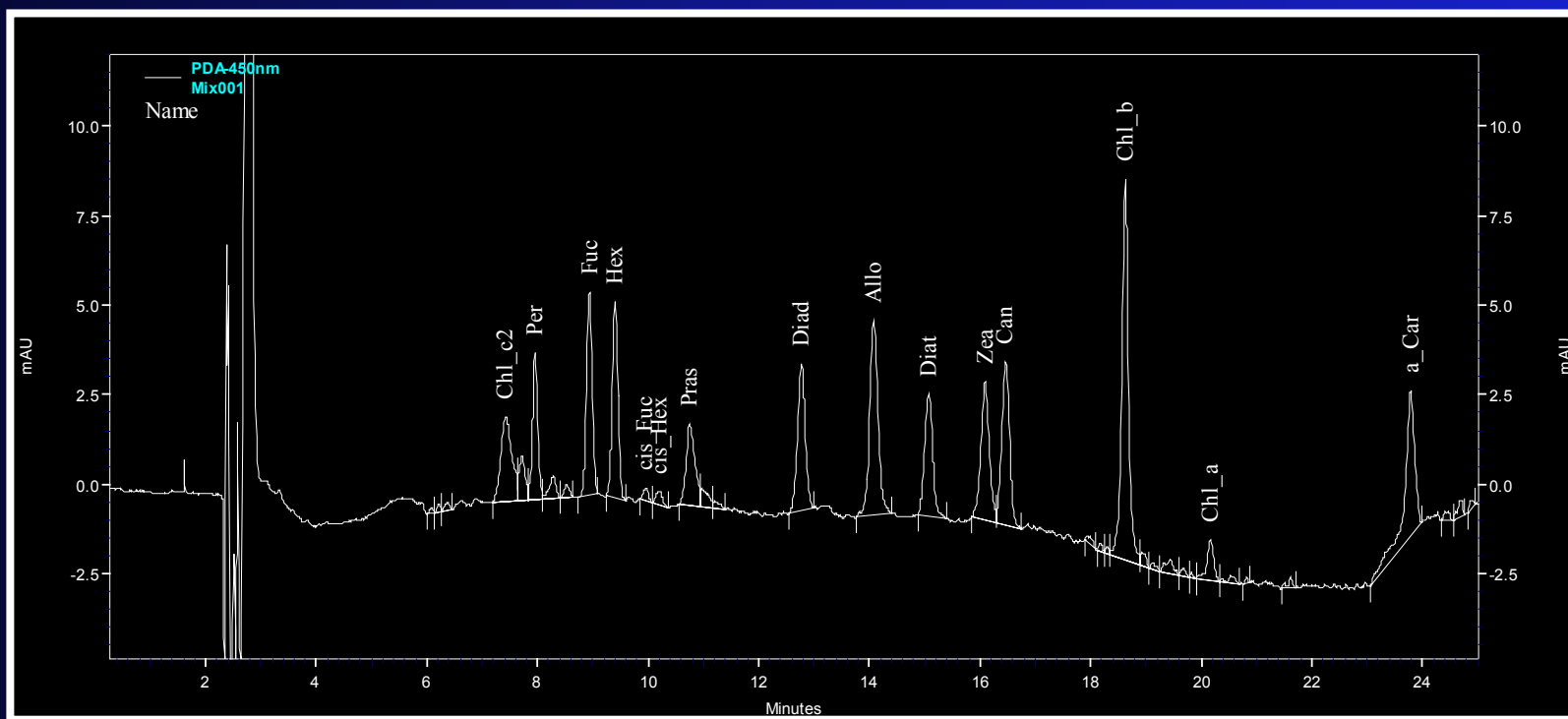
1. Goericke and Repeta (1993) C₈ Method - Preliminary results have been obtained.

2. Van Heukelem and Thomas (2001) C₈ with Heater Method - To be reviewed in the near future.

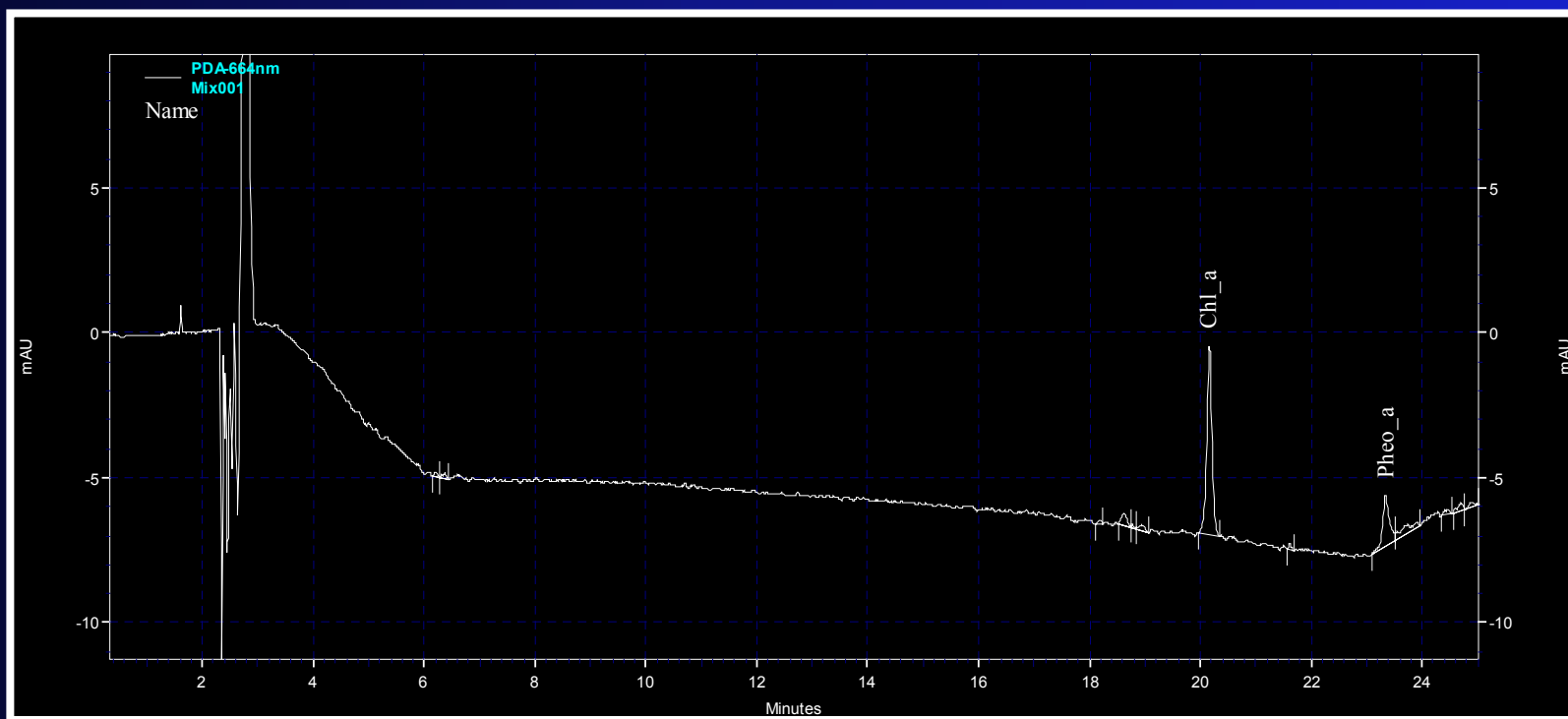
C₁₈ Mixture (436nm)



C₁₈ Mixture (450nm)



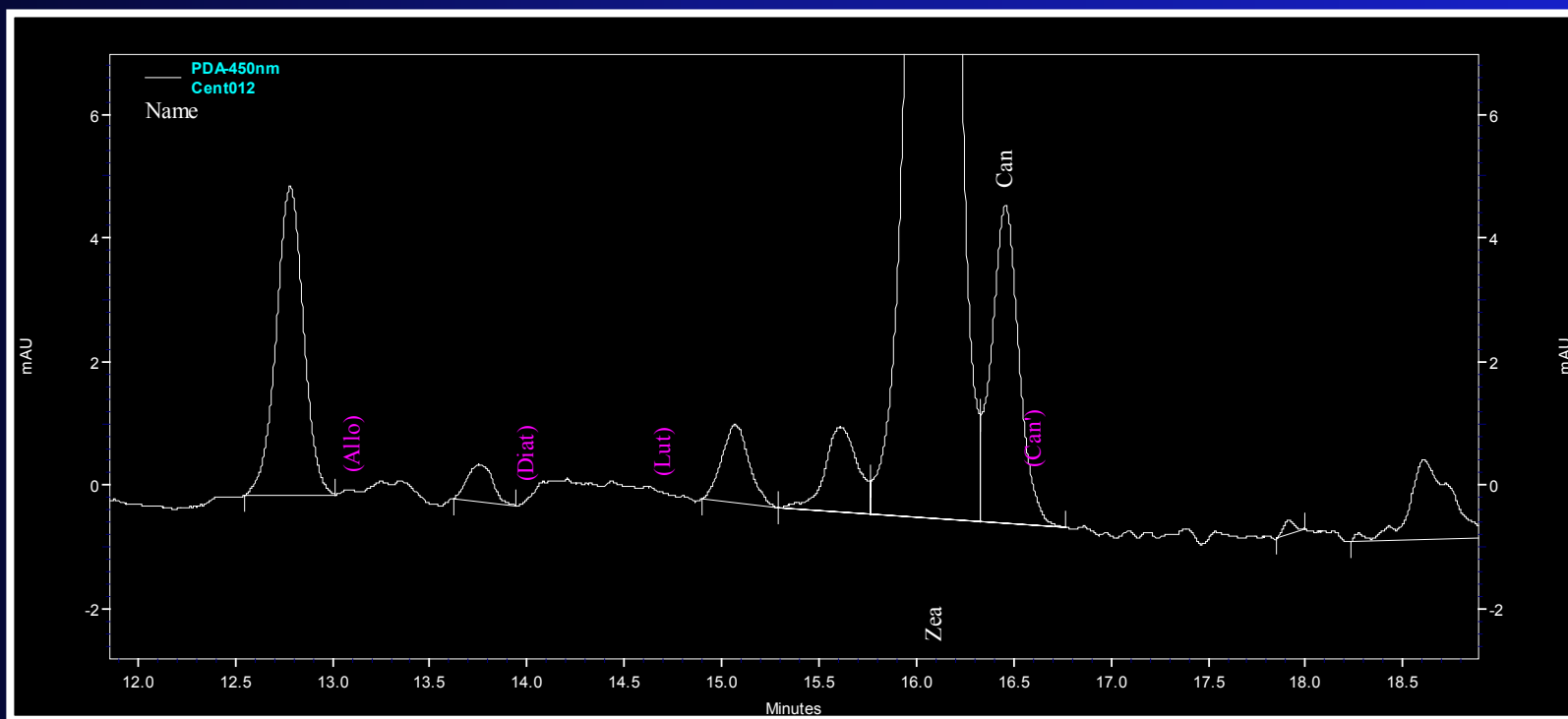
C₁₈ Mixture (664nm)



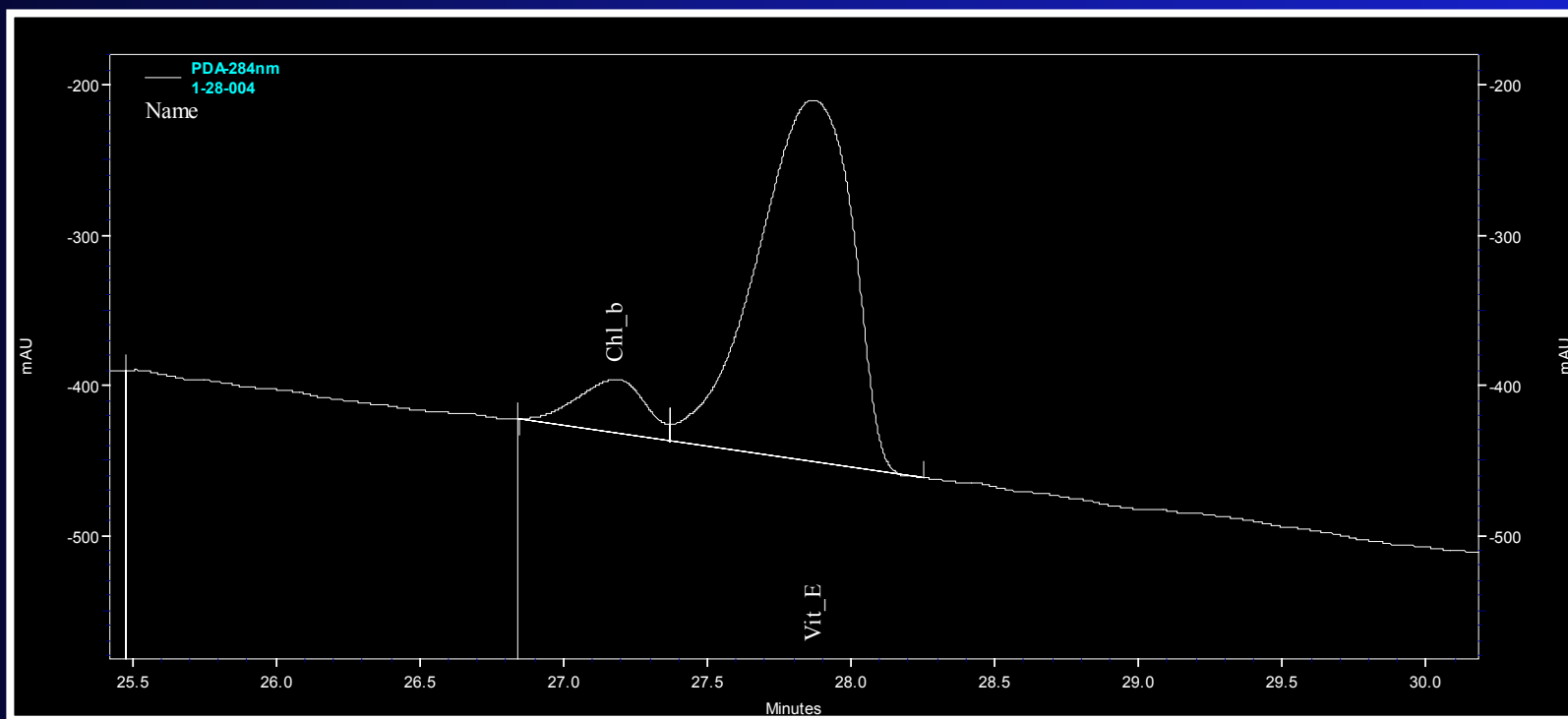
Internal Standards

- **Canthaxanthin (450 nm)**
 - **Advantages**
 - **Measured in the same spectral region as other pigments.**
 - **Has a restricted distribution in oceanic waters.**
 - **Is a pigment compound.**
 - **Disadvantages**
 - **Difficult to purchase in a pure form.**
 - **Can co-elute with zeaxanthin (C₁₈ method).**
- **Vitamin E (284 nm)**
 - **Advantages**
 - **Monitored at wavelength that other pigments do not absorb.**
 - **Easy to purchase in a pure form.**
 - **Disadvantages**
 - **How stable is the UV lamp/optics versus the VIS lamp/optics?**
 - **Chlorophyll *b* peak is merged with the Vitamin E peak.**
 - **Uses an additional wavelength.**

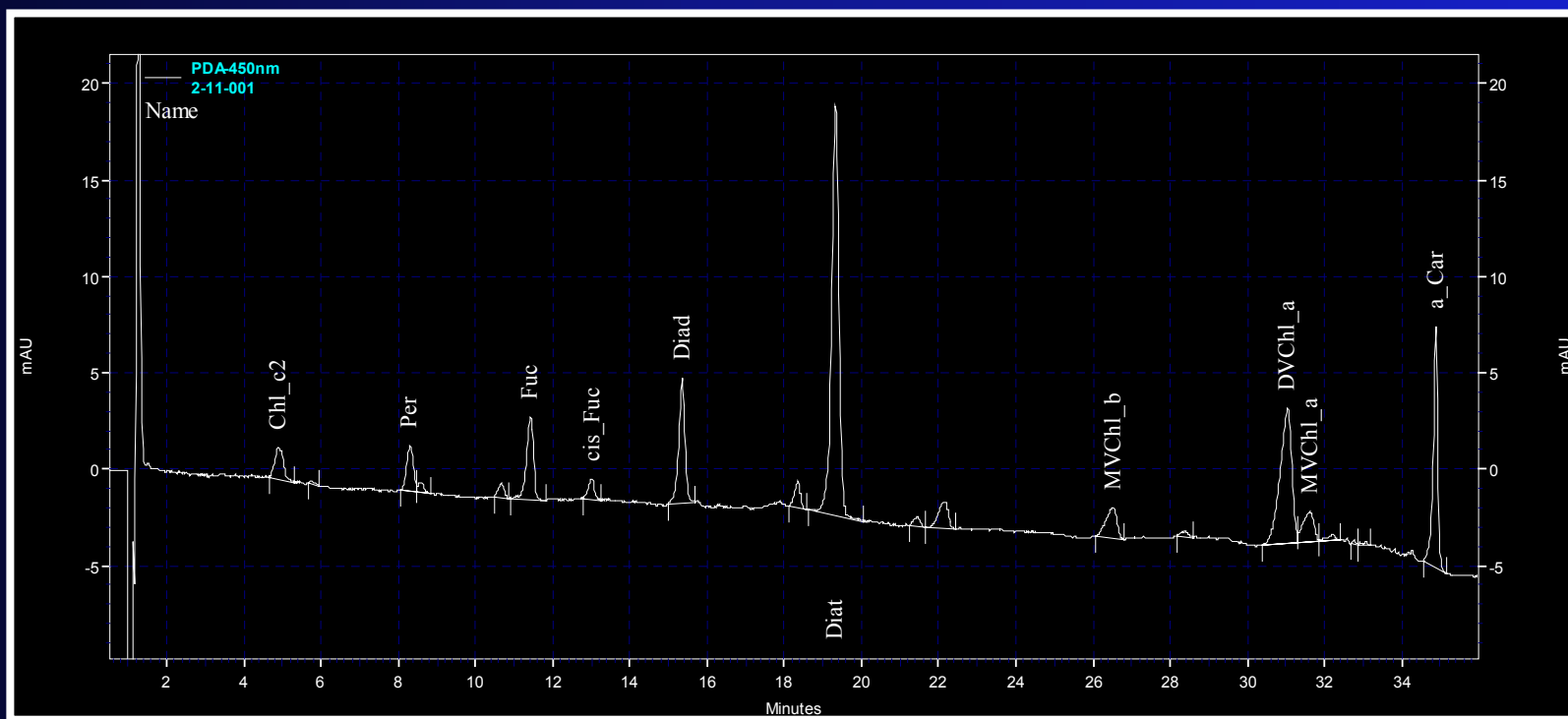
C₁₈ - Zea/Cantha (450nm)



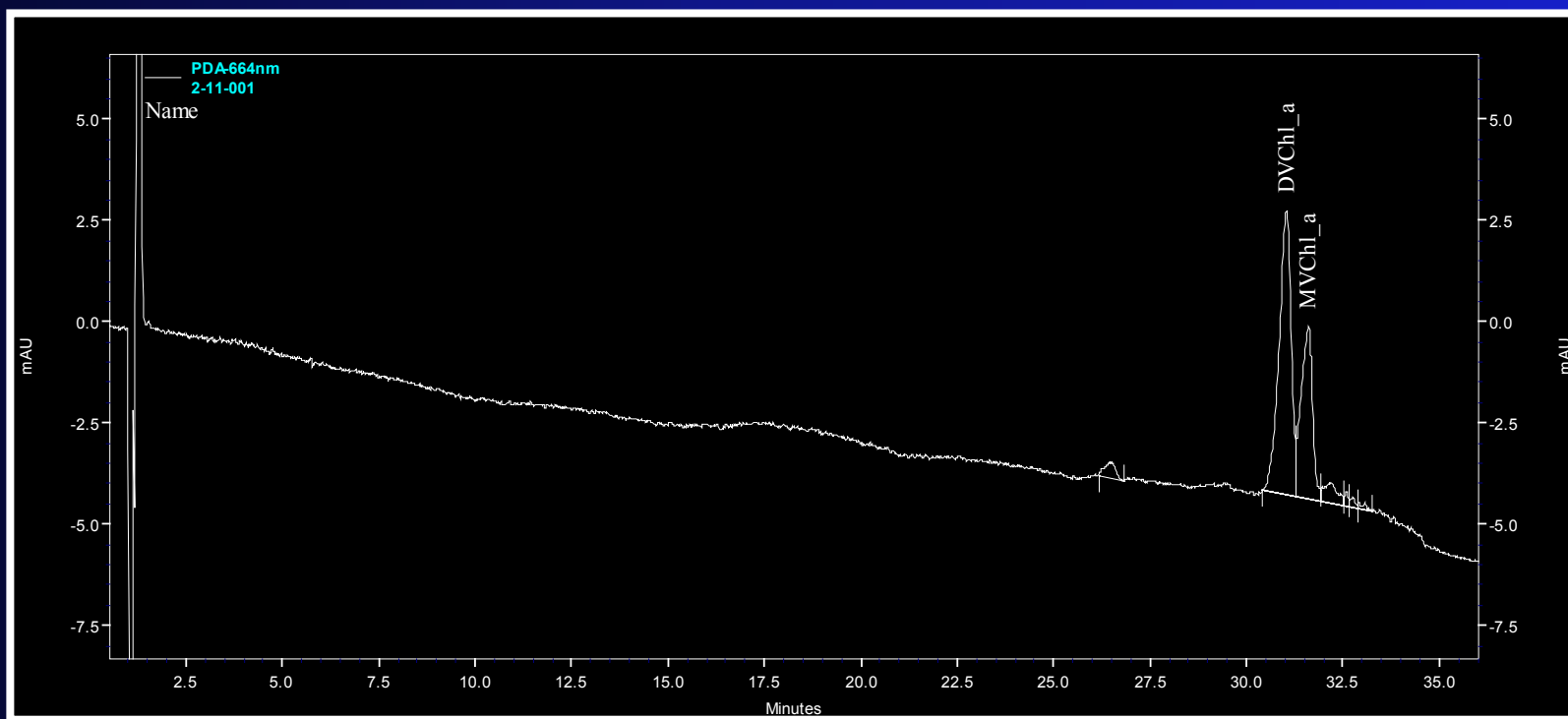
C₈-RG- Chl *b* with Vitamin E (284nm)



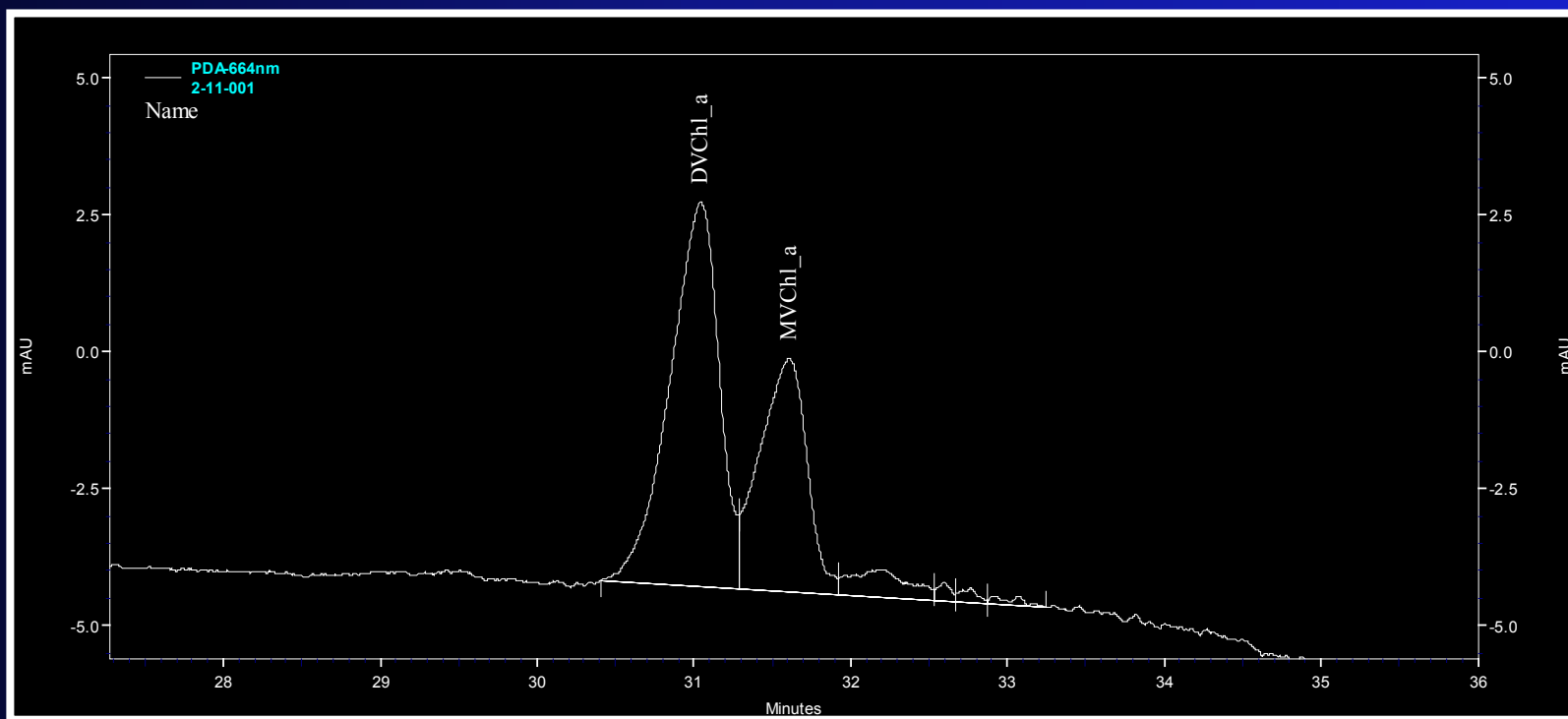
C₈-RG-Mixture (450nm)



C₈-RG-Divinyl & Monvinyl Chl *a* (664nm)



C₈-RG- Divinyl & Monvinyl Chl *a* (664nm)



Sample Log Requirements

CHORS/SDSU Laboratory - (C. Trees)

Gulf of California Cruise (14-30 April 2004)

Total Number of Samples/Filters = 5

PI Sam ID	Vol. Filtered (ml)	Date	Time	Lat	Long	Depth (m)
CT0001	1515	14/04/04	5:30	21.212	157.943	50
CT0002	100	15/04/04	17:44	13.333	-92.832	10
CT0003	4100	16/04/04	1:03	-45.019	-101.208	15
CT0004	4100	16/04/04	1:03	-45.019	-101.208	40
CT0005	4100	16/04/04	1:03	-45.019	-101.208	100

Positive Pressure Filtration System



Bottle Cap Values/Hardware



