

SAN DIEGO ASSOCIATION OF GEOLOGISTS

<http://www.sandiegoeologists.org/>

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SDAG MEETING ANNOUNCEMENT

Wednesday, April 17, 2024

Where: Sunbelt Publications
664-A Marsat Court
Chula Vista, CA 91911

When: 6:00 pm - Social Hour
7:00 pm - Dinner
8:00 pm - Program

Dinner: Taco Bar

Cost: \$ 45.00 Member; Non-Member \$50.00; Student \$ 25.00

Reservations: Make/Pay your reservation [online](#) through the SDAG website, by **10:00pm Friday, April 12**. (*Please note beginning January 2024 all meeting reservations will require on-line pre-payment due to venue costs, venue contracts, and loss of money due to no shows.*)

The Sunbelt location is open-ended to the outside, plan to bring a jacket or sweater in case it gets a little cold after the sun goes down.

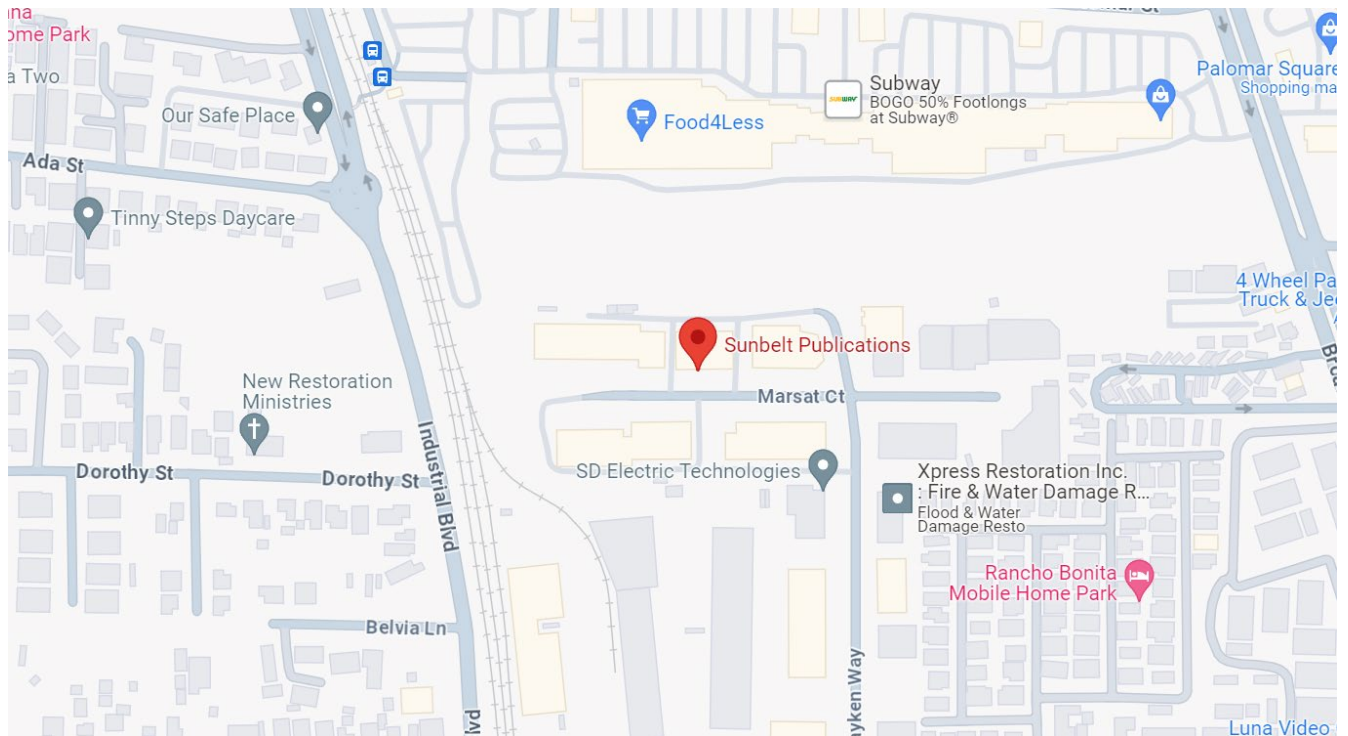
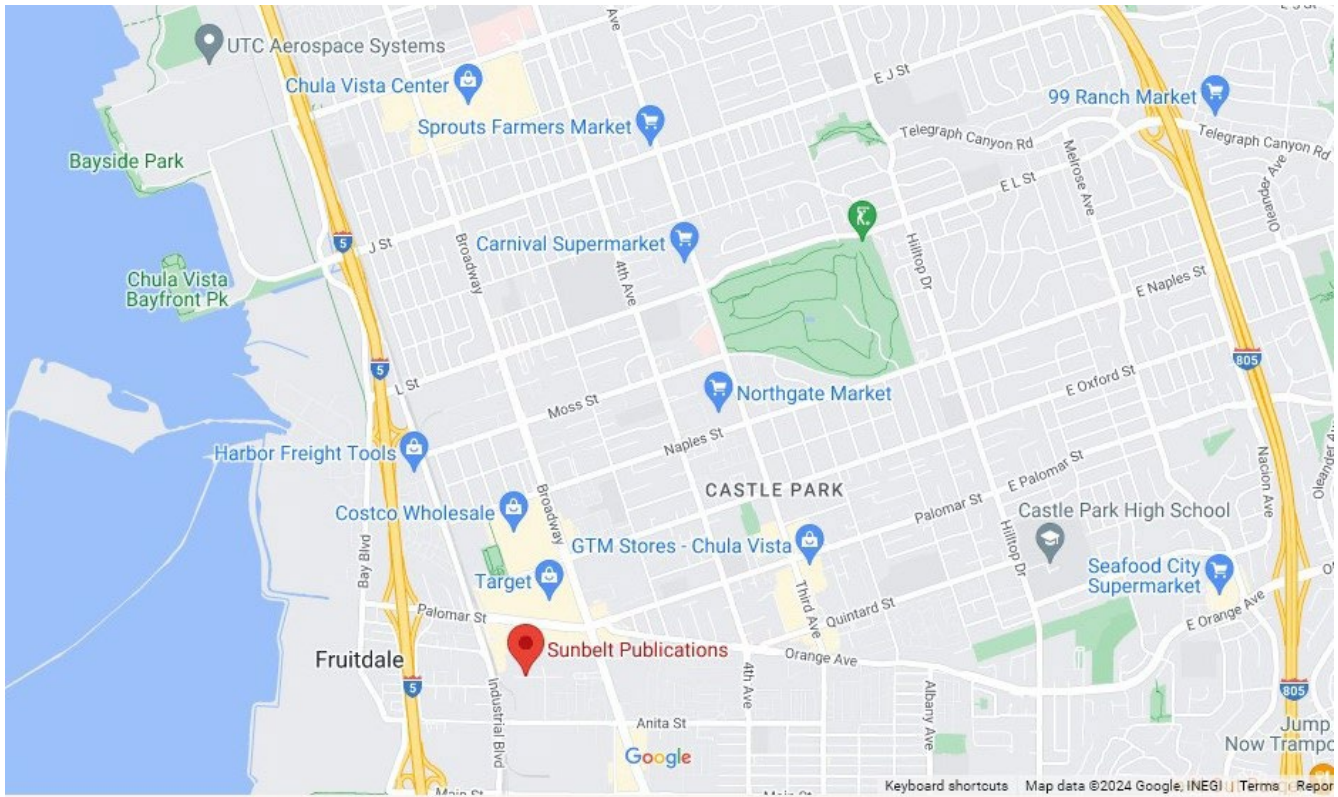
Topic: Annual Scholarship Award Winners Presentations

Speaker: Henry Arbaugh
Talk Title: The dynamics of microplastics in reef environments

Speaker: Bradley Keith
Talk Title: Patagonia ice sheet and Southern Westerly Wind driven variations in Chilean Margin sediment over the past 900,000 years

Speaker: Sarah Engel
Talk Title: No title at the time of newsletter publication

Meeting Location Map:



Directions:

From I-5:

- Take Palomar Street exit, drive east to Industrial Blvd and turn right.
- Drive south to Anita Street, turn left.
- Drive 1 block east to Jayken Way and turn left.

Drive north 1 block and turn right on Marsat Court, go to 664-A on the right.
Park on the street, or in the parking lot in the back.

From I-805:

Take Orange Avenue exit, drive west to Third Avenue and turn left.

Drive south 2 blocks to Anita Street, turn right.

Drive west past Broadway to Jayken Way and turn right.

Drive north 1 block and turn right on Marsat Court, go to 664-A on the right.

Park on the street, or in the parking lot in the back.



Speaker: Bradley Keith

Abstract: Paleooceanographic archives from the Chilean Margin have disproportionately impacted our understanding of southern hemisphere climate due to their exceptional time resolution and proximity to the Antarctic Circumpolar Current (ACC) and the Southern Westerly Winds (SWW). Here we present new data from Chilean Margin Site J1001, recovered during Expedition 379T (a.k.a. JR100) from the abyssal plane approximately 130 km west of Southern Chile at (46.4053S, 77.3242W, 3067 m water depth). Shipboard paleomagnetic and biostratigraphic data place the base of the core at ~900 ka. Low resolution benthic $\delta^{18}O$ data and correlation of the aluminum content of the sediments to ice core records of Antarctic temperature confirm and refine the shipboard chronology. We measured downcore variations in the bulk sediment geochemistry of Site J1001 every 1 cm via XRF core scanning. Variations in the abundances of the terrestrial elements (Al, Si, K, Fe, Ti, Zr, and Rb) reflect changes in the flux, provenance, and grain size of sediments delivered to the Chilean Margin and post-depositional processes. We observe significant glacial-interglacial variability in the bulk geochemistry at Site J1001, with higher ratios of zirconium to rubidium (Zr/Rb) and lower ratios of titanium to potassium (Ti/K) during interglacial periods. We speculate that the observed variations can be linked to changes in sedimentary sources controlled by the extent of the Patagonia Ice Sheet. Significant power is also seen at 11.5 ky, corresponding to a half precession cycle in Zr/Rb and Ti/K and an in-phase relationship at this timescale between the two ratios, indicating control by grain-size. We hypothesize the half precession signal is linked to the latitudinal migration of the SWW, via their control on regional precipitation and erosion and/or the position and strength of the ACC and bottom water flow speeds at the core site. Although a half-precession signature has not been observed in records of the SWW previously, prior work at the northern margin of the SWW range along the Chilean Margin indicates strong precession (23/19 ka) cycles in their position over the last 1 million years (Lamy et al., 2019). We suggest the half-precession signature at Site J1001 reflects the cores location near the mid-point of SWW latitudinal range.



Speaker: Henry Arbaugh

Abstract: Microplastics (MPs) have been shown to stress tropical corals, making it important to understand the dynamics of MPs in reef environments. Unfortunately, most MP sediment studies can only report MP data from benthic sea-floor samples in units of concentration (#MPs/ml or #MPs/g sediment). Common collection methods (grabs, surface collection) cannot provide accurate measurements of MP accumulation rates because they do not include a depositional timeframe for the sediment. In contrast, collecting samples using sediment traps allows MP accumulation rates (#MP/area/day) to be calculated due to the known deployment length of the trap. Between 2009-16, sediment samples were collected monthly in sediment traps to monitor land-based pollution in near-shore and reef sites on St. John US Virgin Islands, a high island surrounded by sensitive coral reef habitats affected by land-based pollution. For this study, frozen archived sediment trap samples were utilized. To extract the MPs from the sediment, we employed a 3-step phased centrifugation density separation method including (1): interstitial water removal, (2): hydrogen peroxide treatment to remove organic matter, and (3): a zinc chloride solution density separation. MP identification was conducted via bright field microscopy, and confirmation of suspected MP particles was performed using the 'hot needle test'. A total of 1672 particles were identified across seven shore samples and nine reef samples. Sample volumes had a range of 12.5-40mL, which resulted in a concentration range of 153-6622 MPs/100mL sediment. Accumulation rate values had a range of 0.018-0.484 MPs/day/cm². Notably, our experiments showed that a potentially high percentage of MPs found in the samples were located in the interstitial water phase (16±12%) and the following hydrogen peroxide phase (25±20%), which is significant because literature review shows that many studies often discard intermediate treatment solutions, which may result in an underestimation of total MP values. Additionally, MP concentrations in the sediment trap samples were found to be much greater than those observed in benthic samples from other comparable locations, which may be due to differing analytical methodology, time frames of deposition, post depositional processes, and/or hydrologic/resuspension processes that affect accumulation in the sediment traps.

UPCOMING 2024 SDAG MEETINGS

May 15, 2024	Don Barrie & William Buckley present their Icelandic Adventures. Meeting at the Catalina Room, Marina Village.
*June 17, 2024	SDAG/SCGS joint meeting: Susan Hough on 1994 Northridge Earthquake. Meeting at El Adobe in San Juan Capistrano.
July 17, 2024	Chuck Houser. Meeting at Sunbelt Publications.
August 21, 2024	Dr. Pat Abbott presents Strata, Paleoclimates, & Asteroid Impact Interpretations.
*September 27-29, 2024	SDAG Annual Field Trip to the Transverse Ranges. (No meeting this month)
October 16, 2024	Mike Ziegler on gravitation. Meeting at Sunbelt Publications.
*November 6, 2024	Joint Meeting with AEG Inland Empire Section / Jahn's Lecturer Cynthia Palomares in Fallbrook.
December 18, 2024	Traditional Holiday Celebration at the NAT with Tom Demere.

*Departure in regularly scheduled meeting date **(Highlights)**

SDAG/SDGS BOARD OF DIRECTORS VOLUNTEER OPPORTUNITES

If you are interested in the structure of SDAG/SDGS or are interested in serving on the Board of Directors for the San Diego Association of Geologists (SDAG), please read the information that follows. Though no Directors have expressed an interest in concluding their service at this time, the next annual election will be this July.

In the fall of 2008, a group of the SDAG past presidents formed a Board of Directors to create a non-profit corporation. This new organization was created as a 501(c)(3) non-profit Corporation. Once the San Diego Geological Society, Inc. (SDGS) was created, the SDGS Board formed a standing committee of SDAG officers and members. On February 7, 2022, SDGS recorded a fictitious business name statement, doing business as (dba) SDAG. The benefits of a 501(c)(3) Nonprofit Corporation Status are: Profits are exempt from corporate income tax and qualify for other tax exemptions; Proper management of SDAG publication sales and sales tax reporting (Field Trip Guide Books; Short Courses); Individuals can make tax deductible contributions (ex. Sponsors, Scholarships, books, or other donations); Can obtain better rates on event liability insurance for events (ex. Meetings, Field Trips); Personal liability protection for officers and organization as a whole (ex. Field Trips, One Stop Wonders); Allows a legal structure that helps to expand our activities (ex. Educational trips); and Tax- exempt status is required for many public and private grants (Future opportunities). SDGS has a broader "public" scope as a non-profit. SDGS also well reflects what SDAG does, i.e., publish geological books, support students with scholarships, lead field trips, and organize other activities of a public and educational nature. The structure of the SDAG/SDGS organization is:

San Diego Geological Society, Inc. (SDGS) CA Public Benefit Corporation IRS Non-Profit 501c3 as a Public Charity	San Diego Association of Geologists (SDAG) A Committee of SDGS - dba SDAG
SDGS BOARD OF DIRECTORS 2-year term elected July 1-June 30: Manage Corporate Affairs July 1, 2023 Positions:	SDAG OFFICERS 1 year term-elected: January-December January 1, 2024 Positions:
1. President - Monte Murbach	1. President - John Teasley
2. Vice President - Chuck Houser	2. Vice President – Heather Reynolds
3. Secretary - Diane Murbach	3. Secretary - Neil Seitz
4. Treasurer – Randy Wagner	4. Treasurer – Tina Zeidan
5. Director – Todd Wirths	
6. Director – Tom Kuper	

See SDGS Articles of Inc & By-Laws for the Non-Profit: <http://www.sandiegogeologicalsociety.org/>

SDGS is governed by a six-member Board of Directors elected to 2-year terms, three in even years and three in odd years. The Board currently consists of those listed above. Former board members include Dave Bloom, Greg Cranham, Mike Hart, Lowell Lindsay, and Bob Stroh.

If you are interested in serving on the Board of Directors for the San Diego Association of Geologists (SDAG), or if you have any questions about the Board, you can contact Diane Murbach at diane@sandiegogeologicalsociety.org or any of the current Directors listed above. Although there are no prerequisites to be a Director, the consensus is that being a prior SDAG President provides the experience and understanding of the issues and decisions a Director will face. Other qualifications include those with legal or financial CPA experience to assist with the Corporations Non-Profit status.

SDAG PUBLICATIONS

<https://www.sandiegogeologists.org/Publications.html>

JOB ANNOUNCEMENTS

<https://www.sandiegogeologists.org/Jobs.html>

2024 SDAG MEMBERSHIP

Renew or become a new SDAG Member - 2024 Member Dues are Due!

On-line Payment (\$25 Member; \$5 Student): <https://www.sandiegogeologists.org/MemberForm.pdf>

Mail in or Bring FORM to Meeting: <https://www.sandiegogeologists.org/MemberForm.pdf>

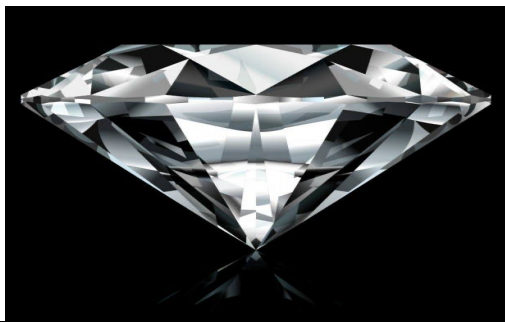
2024 Corporate SDGS Sponsors

Renew or become a new 2024 SDAG Sponsor – Minimum \$100 includes annual Membership.

<https://www.sandiegoeologists.org/Sponsors.html>

On-line Payment or Mail in Form: <https://www.sandiegoeologists.org/SponsorForm.pdf>

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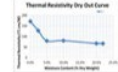
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