



The operations of RV Tan Kah Kee in Support of Training and Educational Programs

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Our Expeditions (2017-2023)



45
Cruises



1373
At-Sea Days



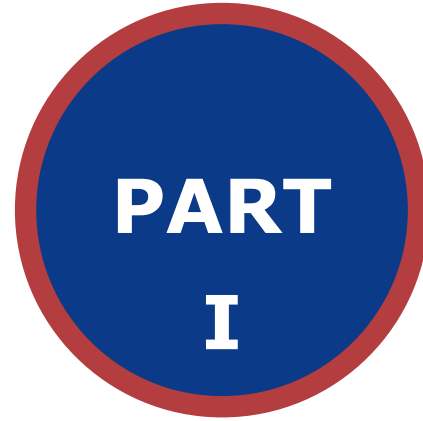
155,000
Nautic miles



1715
Scientists &
Students



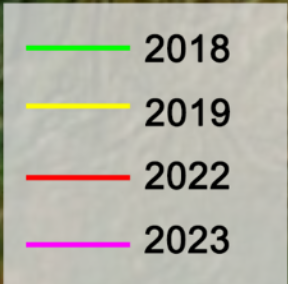
93
Publications



“XMU at Sea” Undergraduate Training Cruise

(Field work training program for B.S degree worldwide)

"XMU at Sea" Cruises



Xiamen

Klang

Cruise ID	Duration	Students
KK1805	Leg 1: Jul. 15-22 Leg 2: Jul. 23-30	50
KK1906	Leg 1: Jul. 23-30 Leg 2: Aug. 4-15 Leg 3: Aug. 19-28	73
KK2203	Leg 1: Aug. 2-8 Leg 2: Aug. 14-18	53
KK2305	Leg 1: Jul. 17-24 Leg 2: Jul. 31-Aug. 5 Leg 3: Aug. 6-10	76

“XMU at Sea” Undergraduate Training Cruises

- Initiated and organized by XMU in Jul. 2018, the “**XMU at Sea**” program (**XaS**) aims to train excellent undergraduates with international perspective and critical skills and experience in ocean sciences.
- By Aug. 2023, **four** XaS cruises had been carried out, and over **250** undergraduates have participated in the program, obtaining valuable opportunities to pursue research at sea.

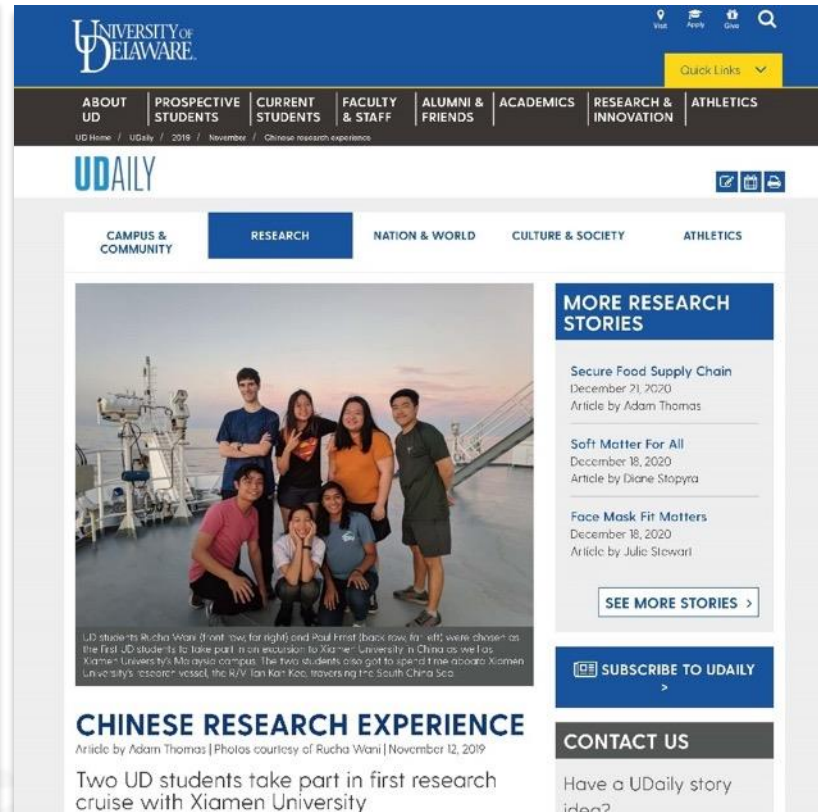


UD Students' Learning at Sea Experiences

Univ. Delaware undergraduate students Rucha Wani and Paul Ernst took part in the nine-day XaS Leg3 from Malaysia to Xiamen, traversing the South China Sea, gaining hands-on experience working and living on the ship. Their stories on the ship were released on **UDAILY**, the UD's official website.



UD student Paul Ernst aboard Xiamen University's research vessel, the R/V Tan Kah Kee.



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CHINESE RESEARCH EXPERIENCE
Article by Adam Thomas | Photos courtesy of Rucha Wani | November 12, 2019

Two UD students take part in first research cruise with Xiamen University

UD students Rucha Wani (front row, far right) and Paul Ernst (back row, far left) were chosen as the first UD students to take part in an excursion to Xiamen University in China as well as Xiamen University's Malaysia campus. The two students also got to spend time aboard Xiamen University's research vessel, the R/V Tan Kah Kee, traversing the South China Sea.

MORE RESEARCH STORIES

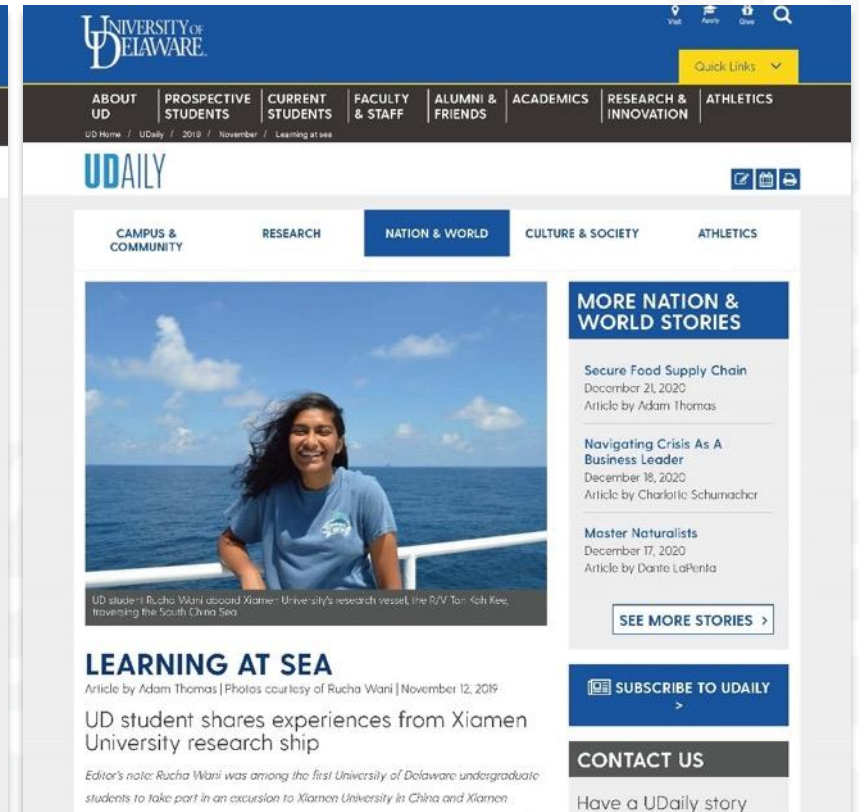
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LEARNING AT SEA
Article by Adam Thomas | Photos courtesy of Rucha Wani | November 12, 2019

UD student shares experiences from Xiamen University research ship

Editor's note: Rucha Wani was among the first University of Delaware undergraduate students to take part in an excursion to Xiamen University in China and Xiamen University's Malaysia campus.

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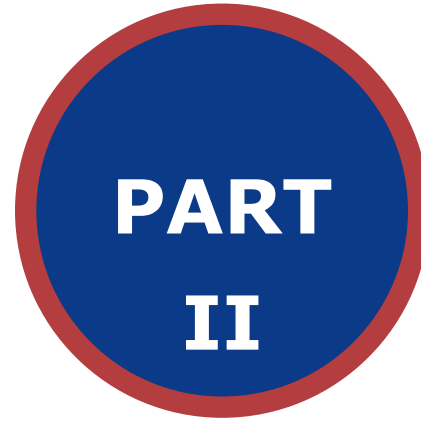
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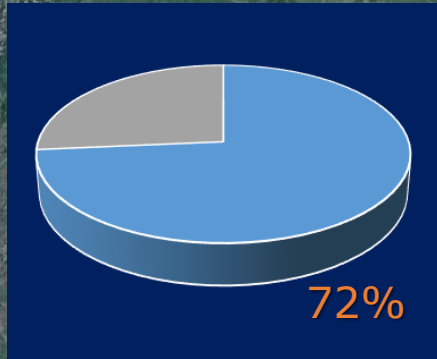
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NSFC Shiptime Sharing Program (SSP)

(Interdisciplinary efforts to train young cruise participants)

NSFC Open Research Cruises(NORC)



8 NORC cruises, served 189 NSFC-funded projects;



Eight chief scientists (two females)



420 science days, 1/3 of RVTKK's total ship time



179 graduates and 80 PhD students



40+ scientific publications;
14 master/PhD thesis

NORC2022-306, a floating campus

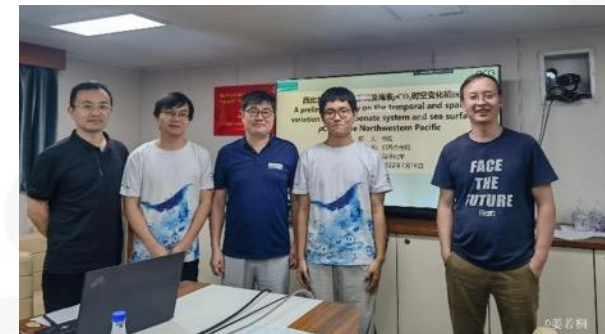
Cruise ID: KK2202 (06/09 – 07/25)

Project Theme: The process, mechanisms and evolution of the biological pump carbon fixation in the Northwest Pacific

During this summer cruise, **a doctoral dissertation proposal, a master's thesis defense, and a final exam (just one student)** all took place in a row onboard RV *TKK*.



PhD dissertation proposal



Master's thesis defense



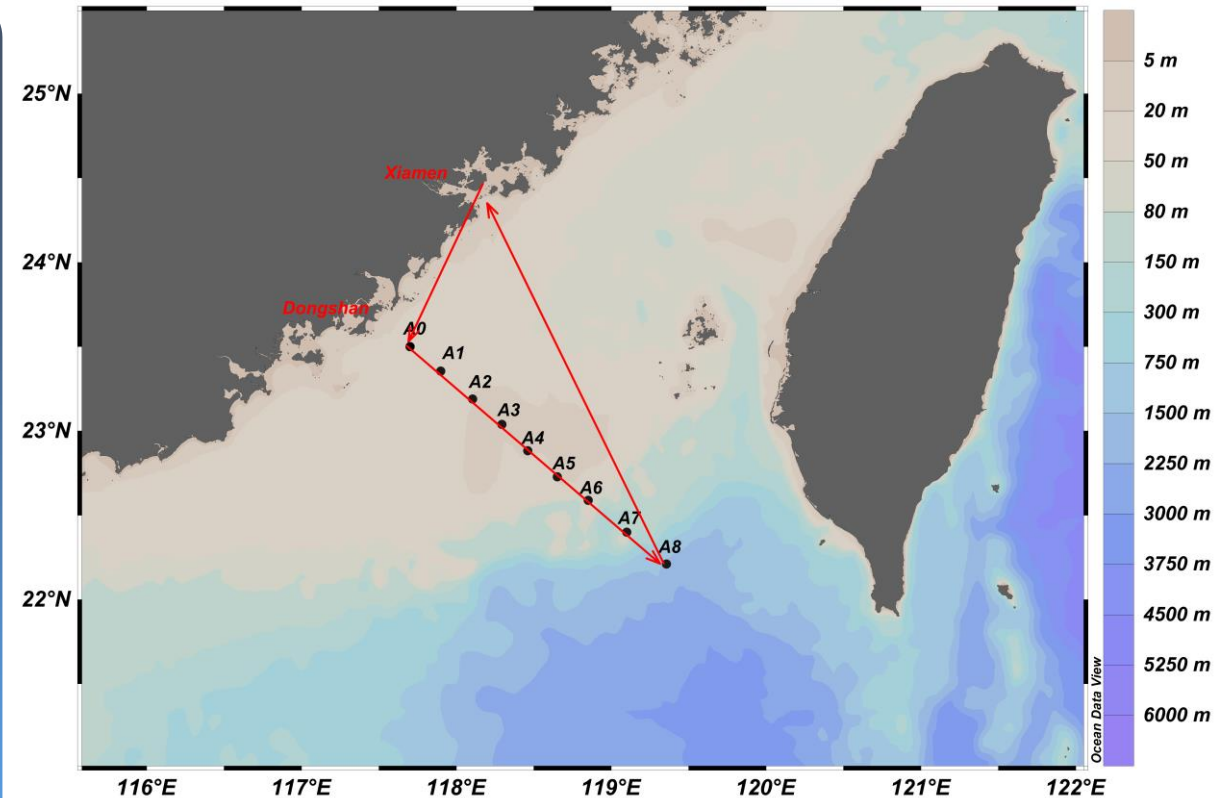
Final exam

2024 NSFC Chief Scientist Training Cruise

- The **very first** under NSFC-SSP, after its 13-year implementation;
- A UNOLS-style chief scientist training cruise (very informative and insightful);
- ~ 20 positions opened to young faculty, post-docs, PhD graduates (through application and selection);
- Participants: 3 NSFC experts, 3 mentors, 3 training associates, 4-6 res-techs, and 20 selected trainees;
- Be scheduled in March 2024.

Cruise schedule:

- pre-cruise workshop at XMU (2 days)
- cruise aboard RV *TKK* (5-6 days, intensive schedule of meetings, trainings, and survey activities)
- Post-cruise wrap-up at XMU (1 day)



- 3 hours per station
- 1 time-series station (25 hrs.)
- 10 knots-----**5-6 days**

2024 NSFC Chief Scientist Training Cruise

Pre-cruise workshop

- Introduction to NSFC-SSP & NORC
- Guideline of best practices, acquaintance to protocols

Shipborne equipment

- CTD operation
- LARS (Winches and cranes)
- Underway & meteorological systems
- Sediment sampling gears

Cruise implementation

Two "acting chief scientists" per day!

- Operation planning (& updates) of the day (interactive experiences with mentors and captain)
- Intensive communications with all parties
- Daily cruise report & daily "after-dinner" meeting

Post-cruise evaluation

- Review of post-cruise assessment reports
- Science/Tech presentations (experience sharing)
- Suggestions for enhancement and improvement

Two-day pre-cruise training agenda and themes

- **Day 1, at XMU**
- **Day 2, aboard RV *TKK***





Teacher at Sea onboard RV *TKK*

(Educational program for K-12)

Teacher-at-Sea onboard RV *TKK* (TaS)

- A fresh attempt for China's marine education;
- Offers seagoing opportunities to participating high school teachers;
- Provides first-hand ocean science knowledge to **K-12 students** through this unique at-sea class;
- A great transformation from conventional teaching approaches on land.



First TaS in 2020



KK2002 基金委南海共享航次—地质地球物理航段

嘉庚号大讲堂

— 面向海洋基础教育的尝新 —

6月15日16:00 海上直播

第一讲：“南海海洋生物和海底沉积物的探秘之旅”

主讲名师：陈庆军
福建省学科带头人
厦门市高中地理陈庆军名师工作室领衔人

长按扫码进入直播间

指导单位：中共厦门市委宣传部、中共厦门市委统战部、中共厦门大学党委宣传部
主办单位：厦门市教育局、厦门市集美学校委员会、厦门日报社
承办单位：厦门大学科考船运行管理中心、集美中学、厦门市青少年成长教育协会

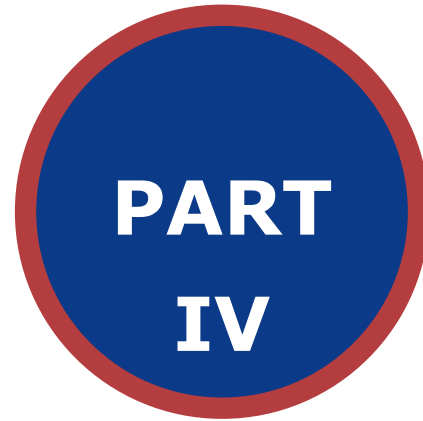
- On Jun. 15, 2020, the first **TaS** online lecture was given by a high school geography teacher, who also guided an up-close virtual tour of the ship to students both in Xiamen and **the remote northwestern rural areas**.
- The lecture was broadcast live, attracting **nearly 5 million online viewers**.



TaS on RVTKK – at a glance

- Coordinated closely with “**XMU at Sea**” project;
- Engaged with local top-ranking high schools;
- Encourage teacher bring a student onboard, working together;
- Online 40-45min. Lecture livestream, **over five million online viewers**.
- A fascinating **Q&A session** -- Q: on land; A: on RVTKK @ sea.





Outreach – Open-House Events

(2017-2023)

Open House Events (2017-2023)

NO.	Time	Open Houses	Participants
1	Nov. 5, 2017	The first Open House	~1000
2	Apr. 6-8, 2018	Tara visited Xiamen -- Joint Open House	~5200
3	Aug. 17-18, 2019	Open house at Boustead Cruise Center, Malaysia	~1500
4	Apr. 11, 2021	XMU Centenary Celebration Events	~1500
5	Mar. 11, 2022	Special open house for high school students	~800
6	Apr. 1-2, 2023	2023 Open House – first one after COVID-19	~1200
			Visitors in total: 11, 200+

Six open-house events served well in outreach of ocean sciences.

Joint Open House by Tara and RVTKK

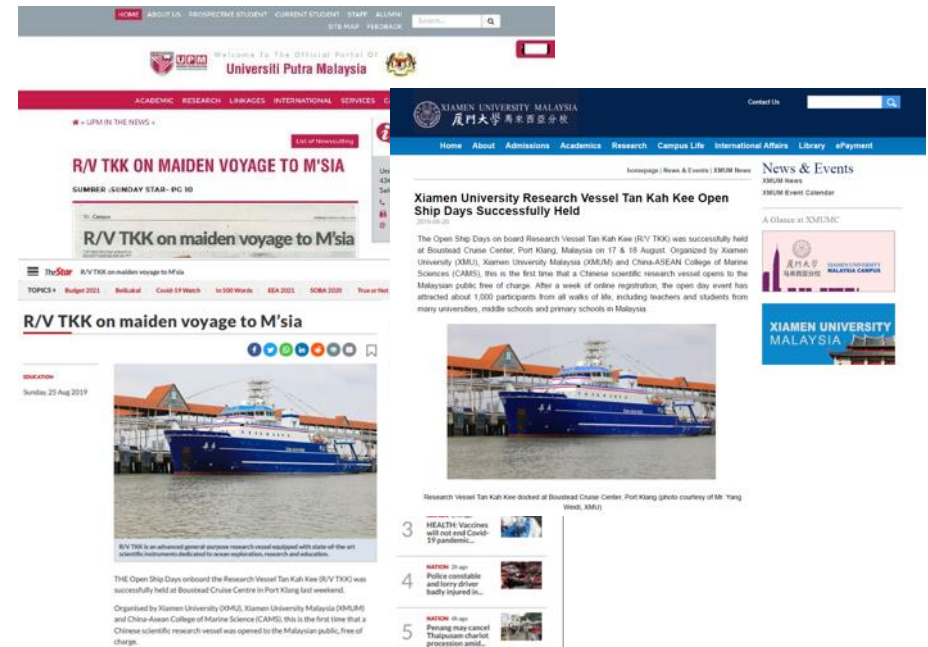
In 2018, the French research schooner **Tara** visited Xiamen to raise awareness about marine environmental protection.

During the one-week stay (Apr. 2-10, 2018), French scientists and XMU jointly hosted a series of events onboard Tara and RV *TKK* to promote the outreach on scientific research and protection of the ocean.



Open House at Boustead Cruise Center, Malaysia

- Aug. 17-18, 2019 during the 2nd XaS.
- The first Chinese RV that opened to Malaysian public;
- Attracted over 1,500 visitors;
- Promoted & facilitated the collaborations among universities and research institutions in Malaysia and China.





THANK YOU !

For further information:

Marine Operations, Xiamen University

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