Republic of the Philippines
Department of Environment and Natural Resources
Visayas Avenue, Diliman, Quezon City
Tel Nos. 929-6626 to 29; 929-6633 to 35
929-7041 to 43; 929-6252; 929-1669
Website: http://www.denr.gov.ph E-mail: web@denr.gov.ph

MEMORANDUM

FOR/TO : **THE ADMINISTRATOR**
National Mapping and Resource Information Authority

THE DIRECTORS
Biodiversity Management Bureau
Environmental Management Bureau
Mines and Geosciences Bureau

FROM : **THE UNDERSECRETARY**
Policy, Planning, and International Affairs

SUBJECT : **CONDUCT OF MARINE SCIENTIFIC RESEARCH BY ACADEMIA SINICA**

DATE : 13 May 2022

This pertains to the email received on 11 May 2022 from the Maritime and Ocean Affairs Office, Department of Foreign Affairs (MOAO-DFA) regarding the letter from the Manila Economic and Cultural Office (MECO) transmitting the application filed by the Academia Sinica through Taipei Economic and Cultural Office in the Philippines (TECO) to conduct a marine scientific research (MSR) which aims to explore sea floor earth structure of the Pacific basin. The MSR is scheduled on 10 September 2022 to 07 October 2022, and will pass the Philippines' exclusive economic zone on 05-06 October.

It was informed that upon MOAO's initial review, the MSR application was submitted less than six (6) months before the intended research activity and the application does not seem to include the participation of Philippine experts in the project. In this regard, MOAO encouraged Academia Sinica to resubmit its application once the requirements/conditions have been fulfilled and will inform the Department once a revised application has been received for the review and evaluation of the members of the MSR-TWG.

For information.

ATTY. JONAS R. LEONES

MEMO NO. 2022 - 317

Gmail

OUEIEA Secretariat <oueiea.denr@gmail.com>

MOAO/DIV2/EDM/2022/05/11-7 Letter on MSR-TWG, 10 Sep 2022- 07 Oct 2022

MOAO DFA <moao@dfa.gov.ph> Wed, May 11, 2022 at 2:00 PM
To: rufinoslopezjr@gmail.com, BFAR Director's Office <do@bfar.da.gov.ph>, namria namria <namria@namria.gov.ph>, Admtr NAMRIA <admtr_namria@yahoo.com>, OUEIEA Secretariat <oueiea.denr@gmail.com>, MGB planning <planning@mgb.gov.ph>, wilfredo.moncano@mgb.gov.ph, central@mgb.gov.ph, DENR-BMB <director@bmb.gov.ph>, william_cunado@emb.gov.ph, recordsco <recordsco@emb.gov.ph>, DOJ goortha <goortha@doj.gov.ph>, FOREIGN INTELLIGENCE OFFICE <fio@nica.gov.ph>, OASAIA-DND <oasaiamails@dnd.gov.ph>, Philippine Navy <OFOICPN@gmail.com>, oasec.ic@dost.gov.ph, osec@dost.gov.ph, pcaarrd@pcaarrd.dost.gov.ph, OD PHIVOLCS <od@phivolcs.dost.gov.ph>, oed pcaarrd <oed_pcaarrd@yahoo.com.ph>, cpcg@coastguard.gov.ph, NCWS Secretariat <secretariat@ncws.gov.ph>, Mario Aurelio <maurelio@nigs.upd.edu.ph>, Laura David <ltdavid@msi.upd.edu.ph>
Cc: onsa-odg@nsc.gov.ph, "Ma. Carmina B. Acuna" <mcb.acuna@nsc.gov.ph>, BFAR ADRRIE <adrrie@bfar.da.gov.ph>, Plans N5 <hpn.n5plans@gmail.com>

Dear Sir/Ma'am

Kindly acknowledge MOAO's letter and its attachment on the above-mentioned subject.

Thank you and best regards,

Maritime and Ocean Affairs Office
Department of Foreign Affairs
2/F 2330 Roxas Blvd., Pasay City
(02) 8 834-3281 /8 834-4052
(02) 8 831-6871

We would love to hear your thoughts,
MOAO Internal Client Feedback Form
SEAs the day!

2 attachments

Letter to MSR-TWG - MECO application.pdf
352K

New MSR Application for the Philippines EEZ.pdf
915K

DEPARTMENT OF FOREIGN AFFAIRS
KAGAWARAN NG UGNAYANG PANLABAS

MOAO/DIV2/EDM/2022/05/11-7

MARITIME AND OCEAN AFFAIRS OFFICE

10 May 2022

Dear Sirs/Mesdames,

MOAO received a letter from the Manila Economic and Cultural Office (MECO) dated 2 May 2022 transmitting the application filed by the Academia Sinica through the Taipei Economic and Cultural Office in the Philippines (TECO) to conduct a marine scientific research (MSR) which aims to explore the seafloor earth structure of the Pacific basin. The MSR is scheduled on 10 September 2022 to 07 October 2022, and will pass the Philippines' exclusive economic zone on 05-06 October. Attached is the MSR application for reference.

Upon MOAO's initial review, the application was submitted less than six (6) months before the intended research activity. Further, the application does not seem to include the participation of Philippine experts in the project.

In view of the above, MOAO wrote a letter to MECO dated 6 May 2022 and reminded them of the conditions for the conduct of MSR in Philippine waters based on the 1982 UN Convention on the Law of the Sea and the 2008 Guidelines for the Conduct of MSR in Philippine Maritime Zones, which include the submission of the application six (6) months prior to the intended research activity and the participation of Philippine experts in the project.

MOAO encouraged Academia Sinica to resubmit its application once the requirements / conditions have been fulfilled. MOAO will inform your good Offices once a revised application has been received for the review and evaluation of the members of the MSR-TWG.

Thank you and best regards.

Sincerely,

MARIA ELENA CRISTINA D. MANINGAT
Acting Head of Office

DISTRIBUTION LIST FOLLOWS

DISTRIBUTION LIST

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Deputy Director General
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NICA Compound, V. Luna Road cor. East Ave., Diliman, Quezon City

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Undersecretary and National Director
Bureau of Fisheries and Aquatic Resources
Department of Agriculture
PCA Bldg., Elliptical Road, Quezon City 1101

Dr. PETER N. TIANGCO
Administrator
National Mapping and Resources Information Authority (NAMRIA)
Department of Environment and Natural Resources
Lawton Avenue, Fort Bonifacio, Taguig City 1638

Atty. WILFREDO G. MONCANO
Director
Mines and Geosciences Bureau
Department of Environment and Natural Resources
MGB Compound, North Avenue, Diliman, Quezon City

NATIVIDAD Y. BERNARDINO
OIC-Director, Biodiversity Management Bureau
Department of Environment and Natural Resources
Ninoy Aquino Parks and Wildlife Center
Diliman, Quezon City

Engr. WILLIAM P. CUÑADO
Director, Environmental Management Bureau
Department of Environment and Natural Resources
DENR Compound, Visayas Avenue, Diliman, Quezon City

Chief State Counsel GEORGE O. ORTHA II
Department of Justice
Padre Faura St., Ermita, Manila

Mr. VIRGILIO A. HERNANDEZ
Deputy Director General for Operations
National Intelligence Coordinating Agency
V. Luna Road, Quezon City

Mr. TEODORO CIRILO T. TORRALBA III
Assistant Secretary
Office for Assessments and International Affairs
Department of National Defense
Segundo Avenue, Camp General Emilio Aguinaldo
Quezon City, Metro Manila

APPLICATION FOR CONSENT TO CONDUCT MARINE SCIENTIFIC RESEARCH IN AREAS UNDER NATIONAL JURISDICTION OF
The Republic of the Philippines

Date : April 2, 2022

Short presentation of the mission

1 - GENERAL INFORMATION

1.1. Cruise name and/or number : Oldest-2

1.2. Sponsoring institution :

Name : **Institute of Earth Sciences (IES), Academia Sinica**
Address : #128, secion 2, Academia Road, Taipei, TAIWAN
Phone : +886 2 2783 9910 Fax : +886 2 2783 9871
Director : Sun-Lin Chung

1.3. Scientist in charge of the project :

Name : Ban-Yuan Kuo
Address : 4F, #7, Ally 6, Lane 421, Guang-Fu South Road, Taipei
Phone : +886 2 2783 9910 X 507 Fax : +886 2 2783 9871
Email : byk@earth.sinica.edu.tw banyuankuo@gmail.com

1.4. Scientist from IES contacted for the project :

Name : Ban-Yuan Kuo
Address : Same as above
Phone : Same as above Fax : Same as above

1.5. Submitting officer:

Name : Ban-Yuan Kuo
Address : Same as above
Phone : Same as above Fax : Same as above
Email : Same as above

2 - DESCRIPTION OF THE PROJECT

2.1. Nature and objectives of the project :

Project title: "Exploring the Earth system: An expedition to the Pacific"

The project "Exploring the Earth system: An expedition to the Pacific" is a scientific campaign led by the Institute of Earth Sciences (IES), Academia Sinica, and the Earthquake Research Institute (ERI)-the University of Tokyo to explore the Earth structure in the oldest seafloor of the Pacific basin. The main scientific activity is the Pacific Array, oldest-2 experiment with the deployment of ocean-bottom seismometers and ocean-bottom electromagnetometers on the seafloor under the high seas east of Guam, western Pacific. During the transects from Taiwan to the ocean-bottom experiment area, non-stop, **underway** meteorological/atmospheric air balloon sounding will be conducted across the Exclusive Economic Zones (EEZ) of Japan, the Federated States of Micronesia, and the Republic of the Philippines.

2.2. Relevant previous or future research cruises :

The cruise in 2022 will be followed by a cruise in 2023.

2.3. Previously published research date relating to the project :

N.A. (not applicable)

3 - METHODS AND MEANS TO BE USED

3.1. Particular of vessel

SHIP'S PARTICULAR	
VESSEL NAME:	**LEGEND**
FLAG:	TAIWAN, R.O.C.
PORT OF REGISTRY:	KAOHSIUNG
VESSEL TYPE:	WORKING VESSEL
OFFICIAL NO:	015850
IMO NO:	9804100
CALL SIGN:	BIBP
OWNER/OPERATOR IMO NO:	4181946 (NARLabs) / 4181950 (TORI)

TYPE OF HULL:	DOUBLE HULL
NAVIGATION AREA:	OCEAN GOING
ACCOMMODATION:	43 PERSONS
BUILT BY:	TRIYARDS SSY
HULL NO:	H1058
YEAR BUILT:	2016
CLASS SOCIETY/NOTATION:	CR CLASSIFICATION SOCIETY CR100+E, OCEANOGRAPHIC RESEARCH VESSEL, IWS, DPS-1, LCS, CMS(CAU)+
PROP. POWER: (MAX.)	800 kW x 2
NO. AND TYPE OF ENGINES:	CATERPILLAR 3512C
BOW THRUSTER:	CATERCILLAR TYPE MFTT 417 FP x 750 KW x 2
SPEED:	10 Kts(SERVICE) / 12 Kts(TRIAL MAX.)
GROSS/NET TONNAGE:	2629.0 / 788.0
DEADWEIGHT:	1192.0
SUMMER DRAFT/FREE BOARD:	4.35 M / 2.15 M
(with GONDOLA) MAX DRAFT:	5.56 M
L.O.A/L.B.P:	76.226 M / 68.42M
EXTREME BREADTH/DEPTH:	16.0 M / 6.5M
TPC AT SUMMER DRAFT:	9.101
GENERAL TANK CAPACITY:	F.O. TANK: 548 M^3 (D.O. & M.G.O.) F.W.TANK: 380 M^3 W.B. TANK: 1302 M^3 DECK CARGO: 90 T
TEL: (FBB)	009 870 773101460
Fax: (FBB)	009 870 783103143
MMSI/EPIRB/MF/HF/DSC:	416250600
INMARSAT C NUMBER:	441600941 & 441600942
OWNER	National Applied Research Laboratories
OPERATOR:	Taiwan Ocean Research Institute, National Applied Research Laboratories
COMPANY TEL/FAX:	+886 7 2618688/+886 7 2313123
COMPANY ADDRESS:	No.196 Henan 2nd Rd., Kaohsiung, (80143) Taiwan (R.O.C)

3.2. Aircraft or other craft to be used in the project :

NONE

3.3. Particulars of methods and scientific instruments :

In the Philippines' EEZ, we will NOT deploy instruments in the ocean or take samples from the ocean.

Along the cruise, we will conduct **underway** meteorological and atmospheric measurements by releasing upper-air balloons with a small sensor (radiosounde) to pass readings of temperature, vapor content, and electric density, in a real-time mode to the RV. The passage across the Philippines' EEZ is roughly scheduled on October 5 and 6. These scientific data are extremely useful for typhoon and space weather monitoring. The "underway" survey is a standard routine for long cruises internationally, i.e., the RV does not stop to make long observations and does not take samples from the ocean. The balloon operation, also common in international science community, will not affect aircrafts because the strong turbulence associated with any flying object will sweep away the balloons. The balloon is designed to ascend to 10-20 km altitude and when it descends its parachute allows it to drift slowly with a speed too slow to harm any vessels. Understanding air and atmospheric properties is crucial to typhoon study, especially in western equatorial Pacific. The data will be valuable to us and to international community in the mitigation of hazards from the oceans and atmosphere.

The operation will be conducted twice a day at Universal Times of 0000 and 1200, to comply with the international operation protocol. In the approximately 2 days of passage in the Philippines' EEZ (October 5 and 6, 2022), we will release three times of balloons pending sea conditions.

Types of samples and data	Methods to be used	Instruments to be used
Air temperature, vapor content, electric density	Real-time measurement	Air-balloon + sensor

Used material :

3.4. Indicates whether harmful substances will be used :
NONE

3.5. Indicate whether drilling will be carried out :

NONE

3.6. Indicate whether explosives will be used :

NONE

4 - INSTALLATIONS AND EQUIPMENTS

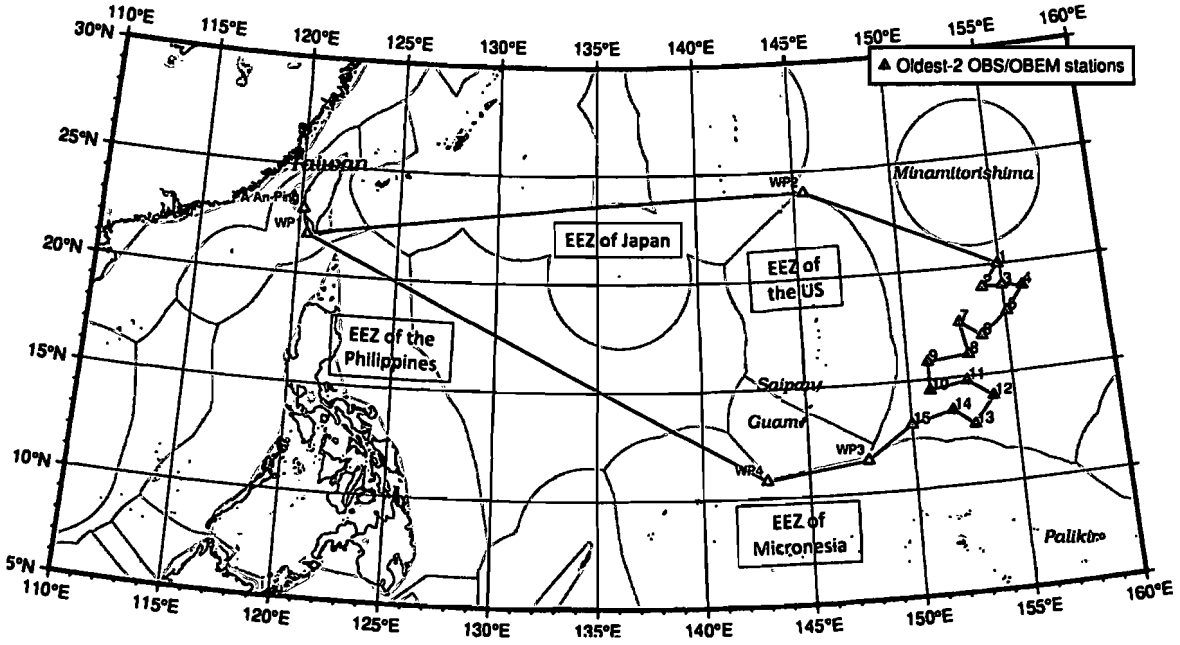
Details of installations and equipments (dates of laying, servicing, recovery, exact locations and depth)

We will not install any instruments in the Philippines' EEZ, except releasing air balloons at most three times during the passage. Operations dates cover October 5 and 6. Locations are shown below.

5 - GEOGRAPHICAL AERAS

5.1. Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude) :

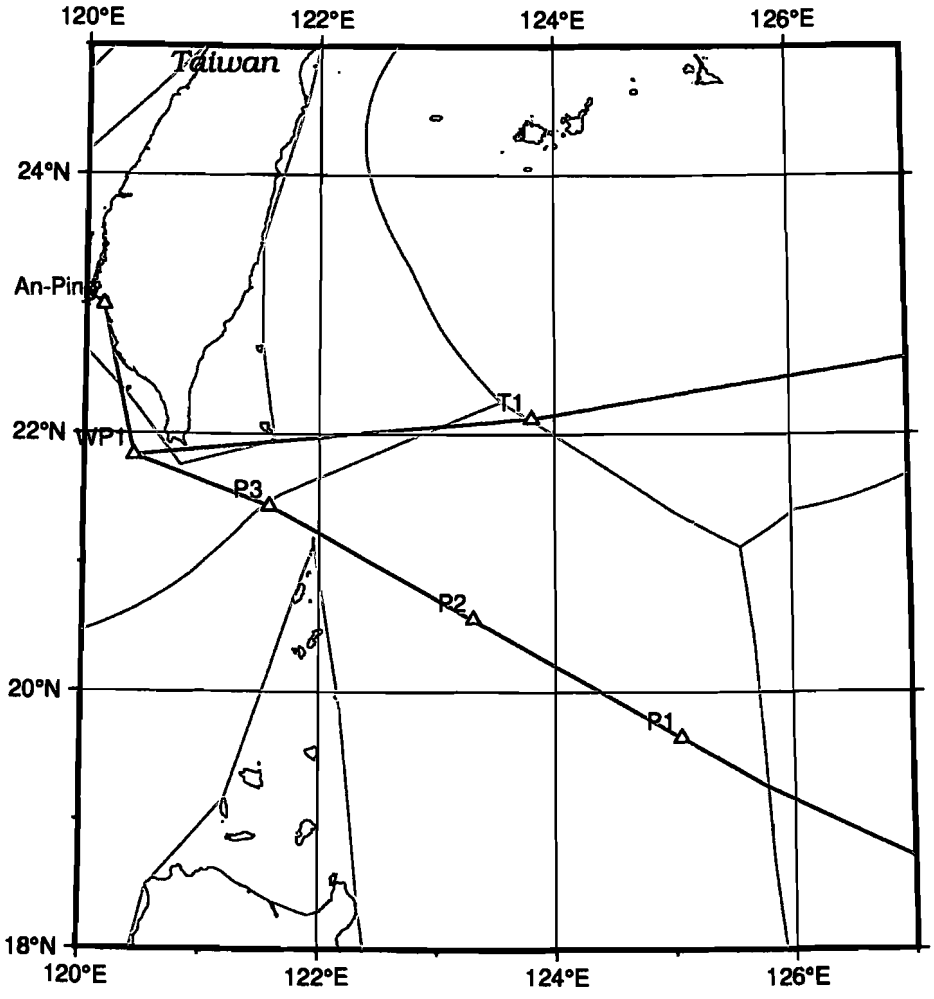
The figure below shows the cruise for the main project, which takes 28-29 days. The main task of this cruise is to deploy ocean-bottom instruments in the western Pacific (triangles). Along the entire cruise we will release air balloons. The passage of the Philippines' EEZ (gray curves) takes about 2 days and three release of balloons.



5.2. Attach chart(s) at an appropriate scale showing the geographical areas of the intented work and, as far as practicable, the positions of intented stations, the tracks of survey lines, and the locations of installations and equipment :

The figure below provides approximate locations where balloons are released. The estimates of the latitudes and longitudes are

P1: 19.65°N 125.06°E
P2: 20.57°N 123.31°E
P3: 21.44°N 121.58°E



6 - DATES

6.1 Expected dates of first entry into and final departure from the research area of the research vessel :

The project cruise takes 28-29 days from September 10, 2022 to October 7. Attached is the cruise plan. The RV Legend will pass the Philippines' EEZ in October 5 and 6, if everything is on schedule.

Planned schedules (in days) :

Sta #	Lon (°)	Lat (°)	Depth (m)	Dist (km)	Dist (nm)	Speed (knot)	Travel (hr)	Arr. Date (mo/day/hr)	Op* (hr)
An-Ping	120.15	22.99				9	0.00	9/10 10:00	0
WP1	120.42	21.83		131.94	71.24	9	7.92	9/10 17:54	0
WP2	145.50	24.00		2576.60	1391.26	9	154.58	9/17 04:29	0
OL1	154.90	20.00	5727	1065.90	575.54	9	63.95	9/19 20:26	5
OL2	154.00	19.00	5722	145.82	78.74	9	8.75	9/20 10:11	5
OL3	155.00	19.00	5250	105.14	56.77	9	6.31	9/20 21:30	5
OL4	156.00	18.90	5650	105.75	57.10	9	6.34	9/21 08:50	5
OL5	155.10	17.80	5648	154.86	83.62	9	9.29	9/21 23:08	5
OL6	153.75	16.80	5269	181.40	97.95	9	10.88	9/22 15:01	5
OL7	152.70	17.50	155	136.03	73.45	9	8.16	9/23 04:11	5
OL8	153.00	16.00	5183	169.82	91.70	9	10.19	9/23 19:22	5
OL9	151.00	15.80	5975	215.03	116.11	9	12.90	9/24 13:16	5
OL10	151.00	14.50	6012	144.55	78.05	9	8.67	9/25 02:56	5
OL11	152.80	14.80	6060	196.49	106.10	9	11.79	9/25 19:44	5
OL12	154.00	14.00	6047	156.90	84.72	9	9.41	9/26 10:08	5
OL13	153.00	12.75	5994	176.13	95.10	9	10.57	9/27 01:42	5
OL14	152.00	13.50	5981	136.68	73.80	9	8.20	9/27 14:54	5
OL15	150.00	13.00	6055	223.49	120.68	9	13.41	9/28 09:19	5
WP3	148.00	11.60		267.29	144.32	9	16.04	9/29 06:21	0
WP4	143.00	10.90		550.81	297.41	9	33.05	9/30 15:24	0
WP1	120.42	21.83		2693.01	1454.11	9	161.57	10/7 08:58	0
An-Ping	120.15	22.99		131.94	71.24	9	7.92	10/7 16:53	0

NOTE : Dates in the waters within the jurisdiction of the Republic of the Philippiines:

entry date: 0000 October 5, 2022

(a rough estimate)

exit date: 2400 October 6, 2022

(a rough estimate)

6.2 Indicate if multiple entry is expected :
NONE

7 - PORTS CALLS

7.1. Dates and names of intented ports of call
NONE

7.2. Any special logistical requirements at ports of call
NONE

7.3. Name/Address/Telephone of shipping agent (if available)
NONE

8 - PARTICIPATION

8.1. Extent of which will be enabled to participate or to be represented in the research project :

N.A. The RV is fully booked

8.2. Proposed dates and ports for embarkation/disembarkation :

NONE

9 - ACCESS TO DATA, SAMPLES AND RESEARCH RESULTS

The data will be released to scientific community after major results are published in compliance with the international scientific data exchange consensus. Specifically, the meteorological/atmospheric data will be accessed through IES website, as a common practice of IES and Taiwan research community. IES is a long-time supporter of open data policy.

ANNEX

List of the scientific team

Ban-Yuan Kuo (PI), Research Fellow, IES-Academia Sinica

Hitoshi Kawakatsu, Professor, ERI-The University of Tokyo/IES-Academia Sinica

Wu-Cheng Chi, Associate Research Fellow, IES-Academia Sinica

Shu-Huei Hung, Professor, Geosciences, National Taiwan University

Pei-Yin Patty Lin, Assistant Professor, Department of Earth Science, National Taiwan Normal University

Hajime Shiobara, Professor, ERI-The University of Tokyo

Kiyoshi Baba, Associate Professor, ERI-The University of Tokyo

Takehi Isse, Assistant Professor, ERI-The University of Tokyo

Ping-Yu Chang, Professor, Department of Earth Science, National Central University

Yih Yang, Deputy Director, Taiwan Ocean Research Institute

CURRICULUM VITAE

of the chief scientist

Curriculum Vitae of

Ban-Yuan Kuo

Personal data:

Birth: Feb. 25, 1957, Male
Degree: Ph.D., 1988, Geophysics, Department of Geological Sciences, Brown University, USA
Address: P.O.Box 1-55 Nangang, Institute of Earth Sciences, Academia Sinica, Taipei, Taiwan.
Tel: (02)2783-9910x507 Fax: 886-2-2783-9871 email: byk@earth.sinica.edu.tw

Research interests:

Observational seismology, tomographic imaging of the crust and mantle, subduction zone dynamics, ocean-bottom seismology, OBS-oceanography

Academic experiences:

1983/09-1987/11 : Teaching and research assistant at the Department of Geological Sciences of Brown University, U.S.A.
1987/12-1989/08 : Postdoctoral Research Associate at the Department of Geological Sciences of Brown University.
1989/10-1997/10: Associate Research Fellow at the Institute of Earth Sciences (IES), Academia Sinica.
1997/11-: Research Fellow, IES, AS

Services/Projects:

Deputy Director, IES, 2000/08-2004/08.
Search committees for institute director, 1994, 1999, 2003.
PI, IES/Taiwan BBOBS development program, 2003-
Editorial board, JAES, 2007-2017.
SEDI advisory committee, 1999-2003.

Refereed papers by Ban-Yuan Kuo (since 2010)

(* corresponding author for student papers)

Lin, C. R., **Kuo, B. Y.**, Liang, W. T., Chi, W. C., Huang, Y. C., Collins, J., and Wang, C. Y. (2010), Ambient noise and teleseismic signals recorded by ocean-bottom seismometers offshore eastern Taiwan, *Terr. Atmos. Ocean.*, *21*, doi:10.3319/TAO.2009.09.14.01(T).

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Chi, W. C., Chen, W. J., Dolenc, D., **Kuo, B. Y.**, Lin, C. R., and Collins, J. (2010), Seismological report on the 2006 Typhoon Shanshan that lit up seismic stations along its way, *Seismol. Res. Lett.*, *81*, 592-596, doi:10.1785/gssrl.81.4.592.

Chi, W. C., Chen, W. J., **Kuo, B. Y.**, and Dolenc, D. (2010). Seismic monitoring of western Pacific typhoon, *Mar. Geophys. Res.*, *31*, 239-251, doi:10.1007/s11001-010-9105-x.

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Huang, T. Y., Gung*, Y., **Kuo*, B. Y.**, Chiao, L. Y., and Chen, Y. N. (2015). Layered deformation in the Taiwan orogen, *Science*, *349*, 720-723.

Lin, S. C., and **Kuo, B. Y.** (2016). Dynamics of the opposite-verging subduction zones in the Taiwan region: Insights from numerical models, *J. Geophys. Res., Solid Earth, 121*,

2174-2192, DOI:10.1002/2015JB012784.

Ko, J. Y.-T., **Kuo, B. Y.** (2016). Low radiation efficiency of the intermediate-depth earthquakes in the Japan subduction zone, *Geophys. Res. Lett., 43*, 11,611-11,619, doi:10.1002/2016GL070993.

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Chen, C.-W., Huang, C.-F., Lin, C.-W., and **Kuo, B. Y.** (2017). Hydroacoustic-ray-theory based modeling of T-wave propagation in the deep ocean basin offshore eastern Taiwan, *Geophys. Res. Lett.*, 44, 4799-4805, doi:10.1002/2017GL073516.

Kuo, B. Y., Lin, S. C. and Lin, Y. W. (2018). SKS splitting and the scale of vertical coherence in the Taiwan mountain belt, *Journal of Geophysical Research: Solid Earth, 123.* http://doi.org/10.1002/2017JB014803.

Chen, K. X., Gung, Y. C., **Kuo*, B. Y.**, Huang, T. Y. (2018). Crustal magmatism and deformation fabrics in northeast Japan revealed by ambient noise tomography, *Journal of Geophysical Research: Solid Earth, 123.* http://doi.org/10.1029/2017JB015209.

Zellmer, G. F., Chen, K. X., Gung, Y. C., **Kuo, B. Y.**, and Yoshida, T. (2019). Magma transfer processes in the NE Japan arc: insights from crustal ambient noise tomography combined with volcanic eruption records, *Frontiers, Earth Science*, https://doi.org/feart.2019.00040.

Lin, C. R., Chiang, C. W., Huang, K. Y., Hsiao, Y. H., Chen, P. C., Chang, H. K., Jang, J. P., Chang, K. H., Lin F. S., Lin, S., and **Kuo, B. Y.** (2019). Evaluations of an ocean bottom electro-magnetometer and preliminary results offshore NE Taiwan, *Geosci. Instrum. Method. Data Syst., 8*, 265–276, https://doi.org/10.5194/gi-8-265-2019

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