



2022

防災教育國際實務經驗交流論壇

防災教育国際実務経験交流フォーラム

International Conference on School's Disaster Risk

Reduction and Resilience Education in Practice





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The 311 Kamaishi Miracle:
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4 Education and Practices of Disaster Risk Reduction on the Pacific Islands - American Samoa and Hawaii

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5 The roles of schools in post - disaster community recovery and DRR education

Agenda

Time	Topic	Speaker
09:30 – 10:00		Registration
10:00 – 10:08	Opening Remarks	Ministry of Education, the Republic of China (Taiwan) Japan-Taiwan Exchange Association
10:08 – 10:10		Group Photo
10:10 – 11:10	<p>【Keynote Speech 1】 The 311 Kamaishi Miracle: a Special Course Enabling All Children to Survive the Great East Japan Earthquake</p>	<p>Professor Toshitaka Katada, Graduate School of Information Science and Technology, University of Tokyo</p>
11:10 – 11:35	<p>【Keynote Speech 2】 The Educational Model that Allows Students to Learn Self- help in Elementary School and Develop the Ability to Help Each Other in Secondary School</p>	<ul style="list-style-type: none"> · Teacher Nakamura Yuma, Nakajima Elementary School. · Teacher Miyake Hidenori, Nakajima Middle School
11:35 – 12:00	<p>【Keynote Speech 3】 How to Enable High School Students to Engage in Disaster Prevention on Their Own</p>	<ul style="list-style-type: none"> · Shizuoka Prefectural SURUGA-SOGO High School · Fujimoto Yuma, New Universal Act
12:00 – 13:00		Lunch
13:00 – 13:40	<p>Panel Discussion: Experience in Disaster Prevention and Education</p>	<p>Moderator: Professor Yih-Chi Tan, Center for Weather Climate and Disaster Research, National Taiwan University</p> <p>Panelists:</p> <ul style="list-style-type: none"> · Dr. Jie-Ru Chen, Associate Professor, Department of Civil Engineering, National Chi Nan University · Dr. Yong-Jun Lin, Center for Weather Climate and Disaster Research, National Taiwan University · Teacher Nakamura Yuma, Nakajima Elementary School · Teacher Miyake Hidenori, Nakajima Middle School · Teacher Ishikawa Mayumi, Shizuoka Prefectural SURUGA-SOGO High School · Fujimoto Yuma, New Universal Act

Time	Topic	Speaker
13:40 – 14:30	<p>[Keynote Speech 4] Education and Practices of Disaster Risk Reduction on the Pacific Islands: American Samoa and Hawaii</p> <ul style="list-style-type: none"> ○ Teachers' roles in tsunami awareness and risk reduction, American Samoa ○ Mangrove restoration for tsunami mitigation, American Samoa ○ Incorporating Hawaiian language materials in geoscience education 	<ul style="list-style-type: none"> · Dr. Pauline W. U. Chinn, Department of Curriculum Studies at University of Hawaii at Manoa. · Dr. Alyssa Anderson, School of Ocean and Earth Science and Technology, University of Hawaii at Manoa.
14:30 – 14:50	Coffee Break	
14:50 – 15:40	<p>[Keynote Speech 5] The roles of schools in post-disaster community recovery and DRR education</p>	<p>Elizabeth Maly, Associate Professor, International Research Institute of Disaster Science, Tohoku University, in Japan</p>
15:40 – 16:30	<p>Panel Discussion: Post-Disaster Reconstruction, Disaster Memory, Indigenous Knowledge, Disaster Risk Reduction of Education</p>	<p>Moderator: Dr. Shing-Tzu Lee, Associate Professor, Program for Indigenous Students, National Pingtung University</p> <p>Panelists:</p> <ul style="list-style-type: none"> · Dr. Pauline Chinn, Department of Curriculum Studies at University of Hawaii at Manoa · Dr. Alyssa Anderson, Department of Curriculum Studies at University of Hawaii at Manoa · Elizabeth Maly, Associate Professor, International Research Institute of Disaster Science, Tohoku University, in Japan · Dr. Su-Min Shen, Associate Professor, Department of Geography, National Taiwan Normal University · Shi-Yun Du, Director, Shimen Elementary School, Pingtung County · Qiu-Hui Wu, Director, Tbulan Elementary School, Taichung City
16:30	Closing	

Keynote Speaker Profile

KATADA Toshitaka



Position / Institution

Project Professor / Graduate School of Interdisciplinary Information Studies,
University of Tokyo
President / Japan Society for Disaster Information Studies

Education & Experience

- 1990: Completion of doctoral program at the Research Institute of Toyohashi University of Technology
- 1990: Researcher, Tokai Research Institute
- 1991: Assistant, Department of Civil Engineering, Faculty of Engineering, Gifu University
- 1993: Full-time lecturer, Faculty of Commerce, Nagoya University of Commerce
- 1995: Lecturer, Department of Construction Engineering, Faculty of Engineering, Gunma University
- 1997: Associate Professor, Department of Construction Engineering, Faculty of Engineering, Gunma University
- Apr. 2000 – Sept. 2001: Visiting Associate Professor, Disaster Prevention Research Institute, Kyoto University
- Apr. 2001 – Mar 2002: Visiting Research Fellow, University of Washington
- 2005: Professor, Department of Construction Engineering, Faculty of Engineering, Gunma University (* 2014: Affiliated unit renamed Gunma University Graduate School of Science and Technology)
- 2010: Director of the Research Center for Disaster in the Extended Tokyo Metropolitan Area, Gunma University
- 2017: Distinguished Professor, Graduate School of Information Science, University of Tokyo
- 2017: Honorary Professor, Gunma University

Membership in committees and councils

- Member of Central Disaster Prevention Council, Special Investigation Committee on Evacuation in Times of Disaster, Cabinet Office
- Member of Science and Technology and Academic Council, Ministry of Education, Culture, Sports, Science and Technology
- Member of Fire Protection Council, Ministry of Internal Affairs and Communications
- Chairman of Potential Water Hazards Map Review Committee, Ministry of Land, Infrastructure, Transport and Tourism
- Member of Conference on the Evaluation of Meteorological Operations, Meteorological Agency

Awards

- 2000: Japan Natural Disaster Society Academic Award, Yokoyama Science and Technology Award
- 2002: International Natural Hazard Society Award, Civil Society Paper Award
- 2007: Commendation for Science and Technology, Minister of Education, Culture, Sports, Science and Technology
- 2011: Japan Education Renewal Alliance Award, Japan Disaster Information Society Hiroi Award
- 2012: Honored by the Prime Minister for contribution to disaster prevention, maritime nation policy, and healthy society
- 2013: Ihatov Award presented by the Miyazawa Kenji Association
- 2015: Honored by the Governor of Wakayama Prefecture

Writings

- Popular Disaster Prevention, Shueisha Shinsho
- Saving Lives by Preventing Disaster, Shueisha Shinsho
- Lessons from Kamaishi on March 11: Life-Saving Lessons, PHP Research
- Cultivating Children's "Survival Power": Tsunami Disaster Prevention based on Kamaishi, Frobel House
- Life-Saving Education: The Tsunami and the Children of Kamaishi, NHK Publishing

Specialist areas: disaster informatics, disaster social engineering

I am committed to research relating to disaster management and response, disaster communications, disaster prevention education, evacuation guidance strategies, etc. I also promote regional disaster prevention activities throughout Japan. In particular, I see disaster prevention education as part of regional disaster prevention and promote various activities along these lines.

In relation to regional disaster prevention, I strive to empower each region to build the skills and preparedness necessary to overcome disasters so as to form a regional disaster-prevention culture.

In 2012, I was commended by the Prime Minister and received an award for my work in disaster prevention. That same year, I

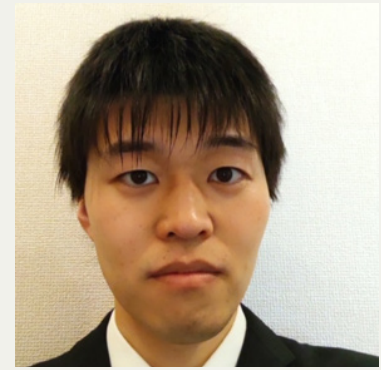
was again commended by the Prime Minister for my contribution to Japan's new maritime nation policy. In 2014, I was invited to the Imperial Palace to speak to Their Majesties the Emperor and Empress.

In my work to explain my research results and promote disaster prevention, I have sat on the Central Disaster Prevention Council, the Central Council for Education, other central government bodies and peripheral organizations, and local government and other committees and councils. My main roles in scholarly associations are president of the Japan Disaster Information Society and director of the Japan Society for Natural Disaster Science.

NAKAMURA Yuma

Position / Institution

Teacher / Shizuoka Municipal Nakajima Elementary School



Education & Experience

- 2015: Graduated from the Faculty of Education, Shizuoka University, majoring in Mathematics Education
- Apr. 2015 – Mar. 2019: Teacher at Hamamatsu Municipal Hogawakita Elementary School
- Apr. 2019 – Mar. 2020: Teacher at Hamamatsu Municipal Asama Elementary School
- Apr. 2020 – present: Teacher at Shizuoka Municipal Nakajima Elementary School teacher

MIYAKE Hidenori

Position / Institution

Teacher / Shizuoka Municipal Nakajima Junior High School



Education & Experience

- **2001:** Graduated from the Department of English and American Literature (majoring in English), Faculty of Letters, Ritsumeikan University, Japan
- **2001 – 2005:** Teacher at Hamamatsu Municipal Hosoe Junior High School
- **2006 – 2010:** Teacher at Shizuoka Municipal Osadanishi Junior High School
- **2010 – 2017:** Teacher at Shizuoka Municipal Takamatsu Junior High School
- * **2016 – 2017:** Graduate student at the Graduate School of Education, Shizuoka University
- **2018 – present:** Teacher at Shizuoka Municipal Nakajima Junior High School
- * Nakajima Junior High School's disaster prevention course has won recognition and received awards from Jiji Press and the Ministry of Education, Culture, Sports, Science and Technology in 2021

FUJIMOTO Yuma

Position / Institution

Chairman / NPO Corporation “New Universal Act”



Education

- Apr. 2018 – Mar. 2021: Shizuoka Prefectural Suruga-Sōgō High School
- Apr. 2021 – present: Shizuoka University

Experience

- Aug. 2018: Participated in Team Buddy, a disaster prevention and mitigation project sponsored by Shizuoka Shimbun and Shizuoka Broadcasting System, including disaster prevention project for high school students. (Participated again in August 2019 and August 2020.)
- Oct. 2018: Participated in the Children’s Future Project, a disaster prevention event hosted by Shizuoka Shimbun and Shizuoka Broadcasting System.
- Mar. 2019: Ran a disaster prevention class for foreign residents of Shizuoka City on the 30th anniversary of the founding of the Shizuoka International Association.
- Nov. 2019: Took part in evacuation training using information equipment sponsored by Shizuoka Shimbun and Shizuoka Broadcasting System.
- June – Oct. 2020: Held four study meetings to develop disaster prevention educational materials for high school students.
- Aug. & Dec. 2020: Held a regional disaster prevention seminar on the theme of “disaster prevention and local community building” in collaboration with the president of Toro Regional Association.
- Oct. 2020: Trialled disaster prevention educational textbooks for high school students.
- Feb. 2021: Held NPO corporate sponsors meeting.
- May 2021: Held NPO corporation establishment meeting.
- Jan. 2022: NPO corporation approved.

Pauline W. U. Chinn

Position / Institution

Curriculum Studies / College of Education, University of Hawai'i at Mānoa



Education & Experience

Professor Pauline Chinn's ancestors arrived in the Kingdom of Hawai'i from villages in the Pearl River delta. Her science educator father inspired her to enter science by connecting familiar, place-based experiences to science concepts and terminology. Her mother's work with visually impaired students showed how educators could prepare students for independent and productive lives. She applied these lessons as a secondary science teacher and explored the roles of culture and personal experiences in becoming a scientist in her doctoral research. At the University of Hawai'i at Mānoa, her research on how culture, language, gender, and geography impact over and underrepresentation in science and related fields is supported by awards from the US Department of Education, National Science Foundation, and National Institutes of Health. Research findings led to two, new sustainability science programs: Interdisciplinary M.Ed. Place-based, Sustainability and a Graduate Certificate in Sustainability and Resilience Education.

Alyssa Natasha Anderson



Position / Institution

Postdoctoral Fellow / School of Ocean and Earth Science and Technology, University of Hawai'i at Mānoa

Education & Experience

Dr. Alyssa Anderson is currently a researcher in the School of Ocean and Earth Science and Technology at the University of Hawai'i at Mānoa and a Postdoctoral Fellow at the Pacific Islands Climate Adaptation Science Center. Her research interests are in Earth sciences with a focus on the Hawaiian Islands, Hawaiian language materials, and Hawaiian language immersion science education. She teaches Geology of the Hawaiian Islands through Hawaiian medium instruction, and previously served on the Kahua A'o project translating Hawaiian language materials and developing Hawai'i culture- and place-based science curriculum. Her Postdoctoral research focuses on assessing wildfire dynamics and impacts on natural resources under a changing climate in the Hawaiian Islands.

Elizabeth Maly

Position / Institution

Associate Professor / International Research Institute of
Disaster Science, Tohoku University, in Sendai Japan.



Education & Experience

With the theme of people-centered housing recovery, her research interests are community-based housing recovery and provision methods of transitional and permanent housing within the reconstruction processes—including policy, process and housing form—that support successful life recovery for disaster-affected people. Past and current research focuses on the experiences of people affected by disaster and the roles of government and NGOs in the processes of housing reconstruction and resettlement after disasters in the U.S.A, Indonesia, Philippines, and Japan.

Tan, Yih-Chi



Position / Institution

Honorary Professor / National Taiwan University
Department of Bio-Environmental Systems Engineering

Research fellow / National Taiwan University
Center for Weather Climate and Disaster Research

Education & Experience

- **Aug. 1982 – July 1983:** Teaching Assistant
National Taiwan University, Department of Agricultural Engineering
 - **Aug. 1983 – July 1989:** Lecturer
National Taiwan University, Department of Agricultural Engineering
 - **Aug. 1989 – July 1994:** Associate Professor
National Taiwan University, Department of Agricultural Engineering
 - **July 2002 – Feb. 2009:** Director
National Taiwan University, Hydraulic Laboratory
 - **July 2002 – Feb. 2009:** Director
National Taiwan University, Comprehensive Disaster Research Center
 - **July 2009 – June 2018:** Director
National Taiwan University, Center for Weather Climate and Disaster Research,
 - **Aug. 1994 – July 2018:** Professor
National Taiwan University, Department of Bio-Environmental Systems Engineering,
 - **Aug. 2018 – present:** Research fellow
National Taiwan University, Center for Weather Climate and Disaster Research
 - **Aug. 2018 – present:** Honorary Professor
National Taiwan University, Department of Bio-Environmental Systems Engineering
-

Specialist Areas

- Soil and water resources
- Groundwater and pollution transmission
- Disaster management
- Emergency response

CHEN, Jie-Ru

Position / Institution

Professor / Department of Civil Engineering, and Director of the R&D Department, National Chi Nan University



Education & Experience

- Disaster Prevention and Rescue Consultant to Nantou County Government
- Expert consultant to disaster prevention education guidance groups in Taichung City, Nantou County, Changhua County, Hsinchu County, and Chiayi County
- Former board director, Taiwan Association of Disaster Prevention Industry
- Leader, Academic and Extension Service Team, Research and Development Office, National Chi Nan University
- Leader, Environmental Conservation Team, Shuishalian Human Community Center, National Chi Nan University
- Associate Professor, Department of Civil Engineering, National Chi Nan University
- Assistant Professor, Department of Civil Engineering, National Chi Nan University
- Engineer, MAA Group

Lin Yong-jun



Position / Institution

Associate Researcher / Center for Weather Climate and Disaster Research, National Taiwan University

-
- Former adjunct assistant professor at Chihlee University of Technology
 - Former adjunct assistant professor, Department of Environmental Safety, Lan Yang Institute of Technology
 - Former visiting scientist, Department of Civil Engineering, Columbia University
 - Certified professional hydraulic engineer
 - Sand conveying kinematics
 - Hydraulic calculations for flood simulation
 - Grey system theory
 - Disaster management and disaster prevention wargaming

Education & Experience

-
- **Aug. 2003 – July 2008:** Assistant researcher / associate researcher National Taiwan University, Department of Agricultural Engineering
 - **Aug. 2008 – July 2009:** Visiting scientist Columbia University, USA, Civil Engineering and Engineering Mechanics
 - **Aug. 2009 – Aug. 2012:** Assistant researcher National Taiwan University, Disaster Research Center
 - **Aug. 2012 – July 2018:** Assistant researcher, National Taiwan University, Center for Weather Climate and Disaster Research
 - **Aug. 2018 – present:** Associate researcher, National Taiwan University, Center for Weather Climate and Disaster Research

Specialist Areas

-
- Water Resources Engineering
 - Secondary Hydrology
 - Coastal Engineering
 - Disaster Prevention Engineering

ISHIKAWA Mayumi

Position / Institution

Teacher / Suruga-Sōgō High School



Education & Experience

- 2004: Graduated from the Department of International Business and Information, Faculty of International Relations, Nihon University
- Apr. 2004 – Aug. 2006: Suzoku Shoji Co.
- Oct. 2006 – Feb. 2008: Study abroad (Canada)
- Apr. 2008 – Mar. 2010: Sankyu Inc. International Logistics Group, Shizuoka Branch
- Apr. 2010 – Mar. 2019: Lecturer at Shizuoka Prefectural Fuji High School
- Apr. 2011 – Mar. 2020: Teacher at Shizuoka Prefectural Shimizu Minami High School
- Apr. 2014 –present: Teacher at Shizuoka Prefectural Suruga-Sōgō High School

Tjuku Ruljigaljig

Position / Institution

Associate Professor / Studies of Indigenous Cultural
Development. B. A. Program, National Pingtung University



Education & Experience

- **Jan. 2011 – July 2013:** Assistant Researcher
National Cheng Kung University, Tainan, Taiwan.
- **Aug. 2013 – July 2015:** Project Assistant Professor
National Pingtung University, Pingtung, Taiwan.
- **Aug. 2015 – July 2019:** Director
Indigenous Education and Research Center, National Pingtung University, Pingtung, Taiwan.
- **Aug. 2015 – Feb. 2020:** Assistant Professor
National Pingtung University, Pingtung, Taiwan.
- **Aug. 2020 – present:** Director
Studies of Health and Leisure & Cultural Industries for Indigenous students B.A. Program,
National Pingtung University, Pingtung, Taiwan.
- **Feb. 2020 – present:** Associate Professor
National Pingtung University, Pingtung, Taiwan.

Shen Su-min

Position / Institution

Associate Professor / Department of Geography,
National Taiwan Normal University



Education & Experience

- **Aug. 1984 – July 1986:** Geography teacher
Taipei Municipal Dazhi Junior High School
- **Aug. 1988 – July 1990:** Teaching Assistant
Department of Geography, National Taiwan Normal University
- **Aug. 1990 – July 2000:** Lecturer
Department of Geography, National Taiwan Normal University
- **Aug. 2001 – present:** Associate Professor
Department of Geography, National Taiwan Normal University

Tu Shih-yun

Position / Institution

Head of Educational Affairs Team /
Shimen Elementary School, Mudan Township,
Pingtung County



Education & Experience

- Elementary school teacher
- Lecturer & Member of Pingtung County Indigenous People Further Education Curriculum Promotion Committee
- Docent, Kenting National Park and Yushan National Park
- Member, Mudan Incident Memorial Hall Preparatory Committee, Mudan Township, Pingtung County
- Consultant, Disaster Prevention Educational Society

Wu Chiu-hui

Position / Institution

Master of Fine Arts / Durham University, UK



Education & Experience

- 18 years teaching at various Atayal schools in Heping District, Taichung City
- 10 years on the music textbook editorial board at Nan I Book Enterprise

Keynote Speech

1

The 311 Kamaishi Miracle:

A Special Course Enabling All
Children to Survive the Great East
Japan Earthquake.

Speaker

Toshitaka Katada



2022.05.06

子どもたちに生き抜く力を与える防災教育 ～東日本大震災における釜石の奇跡に学ぶ～

東京大学大学院情報学環 特任教授
日本災害情報学会 会長
片田敏孝

50m

2011年3月11日 東日本大震災



2022年3月16日 福島県沖地震

2022/03/17 10:00時点の
情報に基づき作成

23時36分頃

最大震度 **6強**

宮城県 登米市、蔵王町
福島県 国見町、相馬市、南相馬市

マグニチュード **7.4**

津波	観測値	注意報
石巻港	30cm (02:14)	宮城県 福島県
仙台港	20cm (01:46)	
相馬港	20cm (03:15)	

23:39発表 →翌05:00解除

写真) 毎日新聞 (撮影 2022年3月17日午前6時47分)

東北新幹線 脱線



P4



P5



P6

阪神・淡路大震災以降の防災教育

それまで**低迷**していた学校防災教育の現場を**一変**させた

防災教育の
急速な拡大

避難訓練

火災から地震へ
回数も大幅・増

教育内容

社会生活との関係を
幅広く扱う教育へ

教員負担・増

サポートも増

文部省(当時)	地方教育委員会・教員向けの資料作成
各都道府県の教育委員会	各地域の特徴を踏まえた指導書を作成
先進事例の普及	優秀な事例に関する情報共有のための表彰制度

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P10

防災教育は「**生きる力**」を
涵養することが重要

と示しつつも



知識の
防災教育

避難
訓練



に**偏重**する**傾向**

11

P11

「生きる力」を育む必要性を強く認識する契機



東日本大震災

2011(平成23)年3月11日

所収) 東海地震発生(2011年03月11日14時46分)

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P12

東日本大震災 大津波から命を守り抜いた子どもたち

P13

釜石市14の小中学校の児童・生徒約3,000人が懸命に避難
小さな子どもやお年寄りを助けながら...

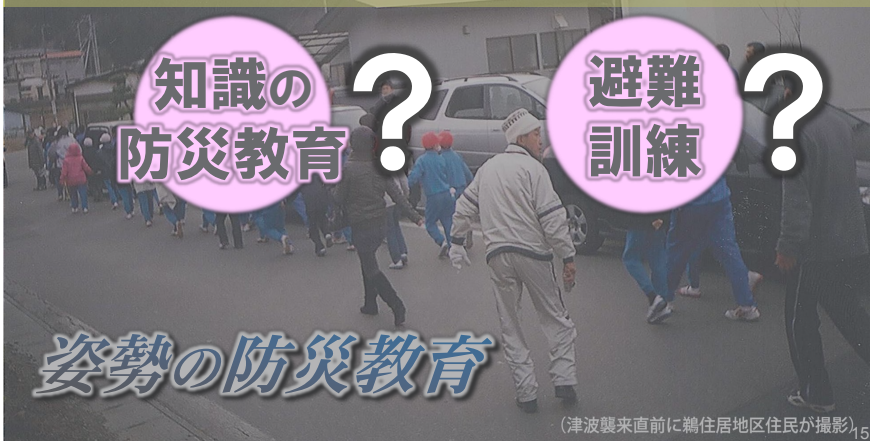


P14

東日本大震災 大津波から命を守り抜いた子どもたち

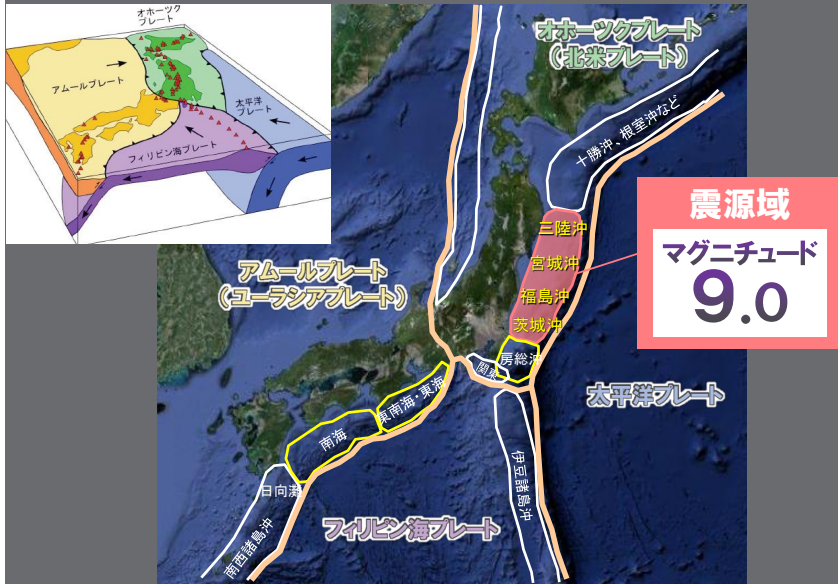
P15

釜石市14の小中学校の児童・生徒約3,000人が懸命に避難
小さな子どもやお年寄りを助けながら...



2011年3月11日 東日本大震災

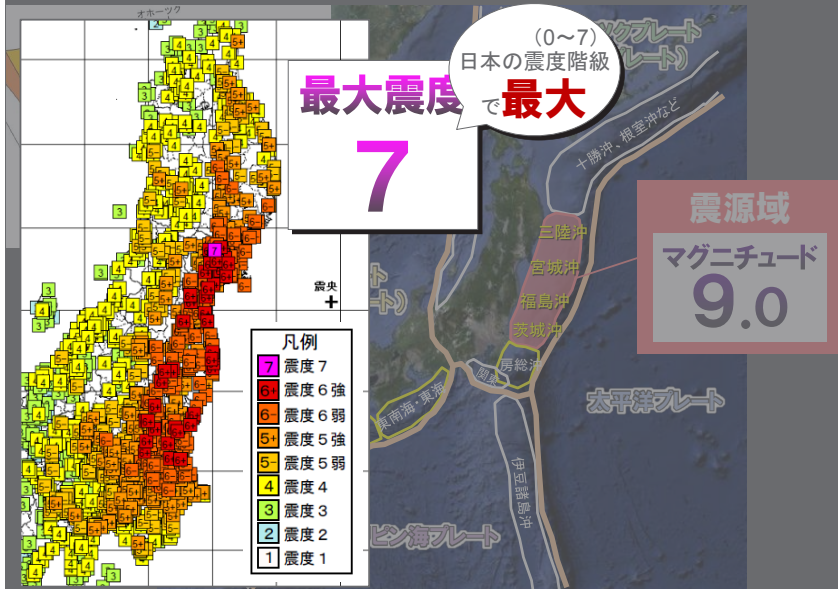
P16



16

2011年3月11日 東日本大震災

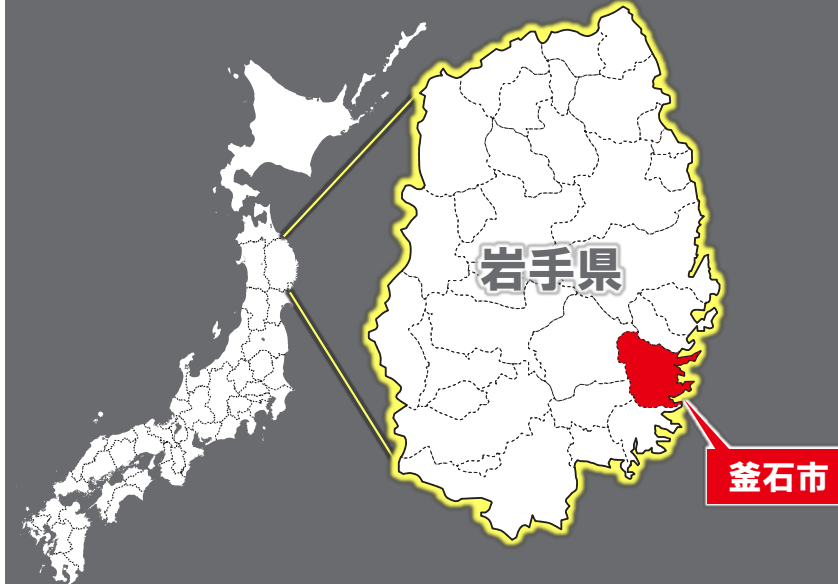
P17



17

岩手県釜石市

P18



18

2011年3月11日 東日本大震災



P19

岩手県釜石市：市役所からみた津波襲来の様子 02:46



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岩手県釜石市の被害状況

P20

中心市街地
(2011.3.12撮影)



20

岩手県釜石市の被害状況

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(2011.3.11撮影)



釜石を16mの津波が襲った

21

岩手県釜石市の被害状況

(2011.3.15撮影)



P22

岩手県釜石市の被害状況

16mの津波が街の全てを海に持ち去った



釜石市	(直接死) 888人 (関連死) 105人
死亡:	993人
行方不明:	152人
(岩手県: H29.9.30)	1,145人

統計・引用) 岩手県総務部総合防災室「東北地方太平洋沖地震に係る人的被害・建物被害状況一覧」平成29年9月30日

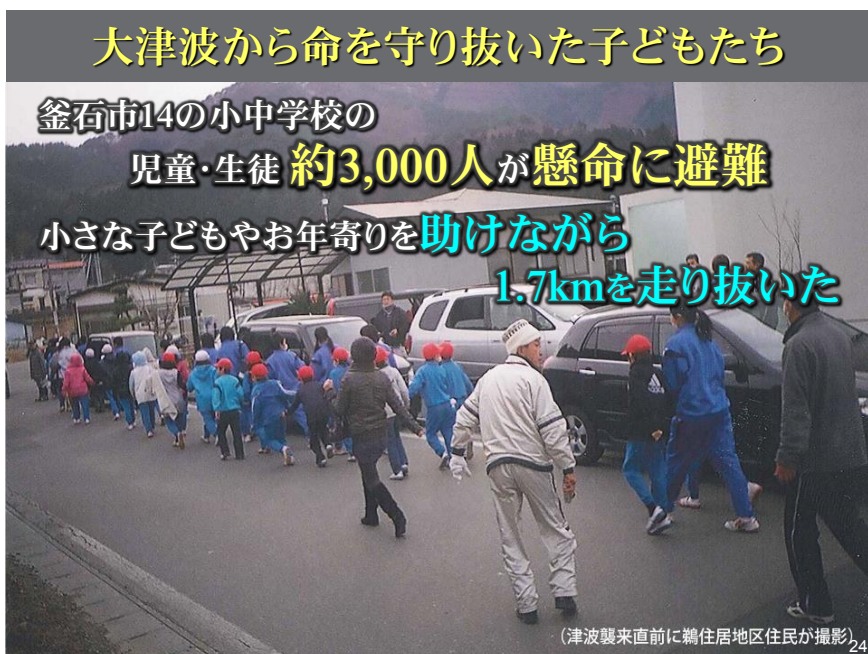
23

P23

大津波から命を守り抜いた子どもたち

釜石市14の小中学校の
児童・生徒 **約3,000人**が懸命に避難

小さな子どもやお年寄りを助けながら
1.7kmを走り抜いた



(津波襲来直前に鶴住居地区住民が撮影) 24

P24

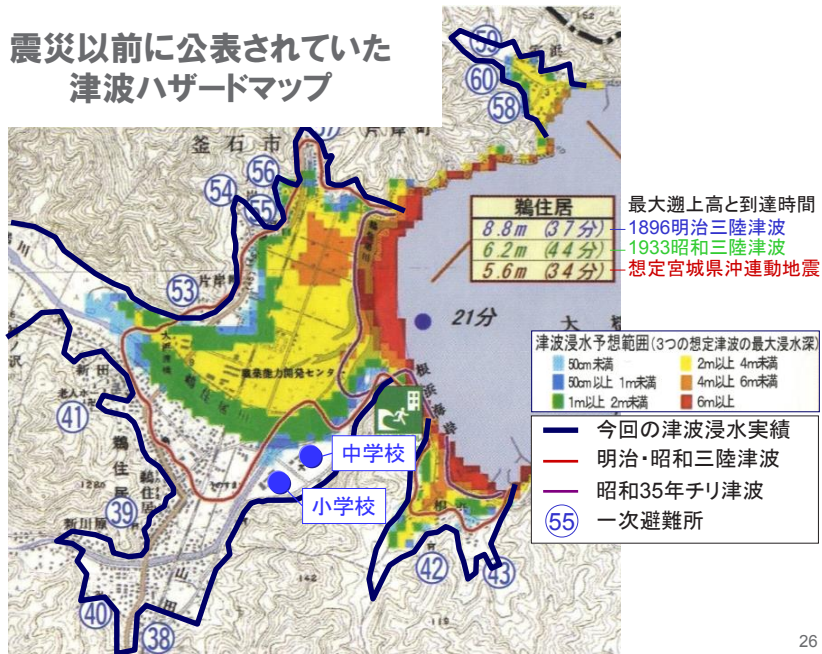


P25

NHKクローズアップ現代

25

震災以前に公表されていた
津波ハザードマップ



P26

26



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P28

“グループホーム”の裏山

28



P29

“グループホーム”から“老人デイサービスセンター”へ避難する様子

29

(津波襲来直前に鶴住居地区住民が撮影)



P30

“老人デイサービスセンター”まで津波が到達する様子

30

釜石市住民(浦山氏)撮影



P31

釜石市住民(浦山氏)撮影

“老人デイサービスセンター”から避難する様子

31



P32

釜石市住民(浦山氏)撮影

“老人デイサービスセンター”から避難する様子

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P33

被災した小学校

33

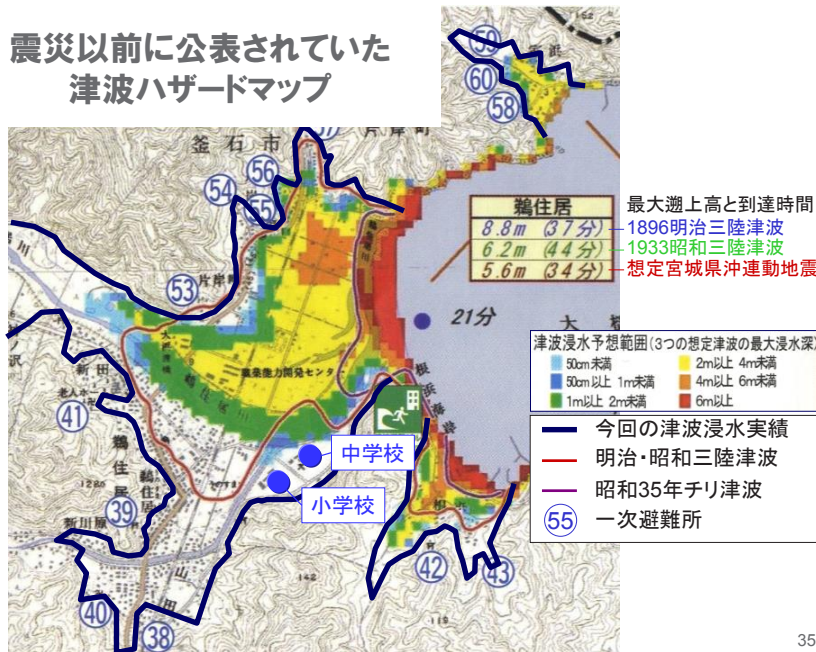
大いなる自然の営みに**畏敬の念**を持ち、
 他者に委ねることなく、
 自らの**命を守る**ことに**主体的**たれ。

避難3原則

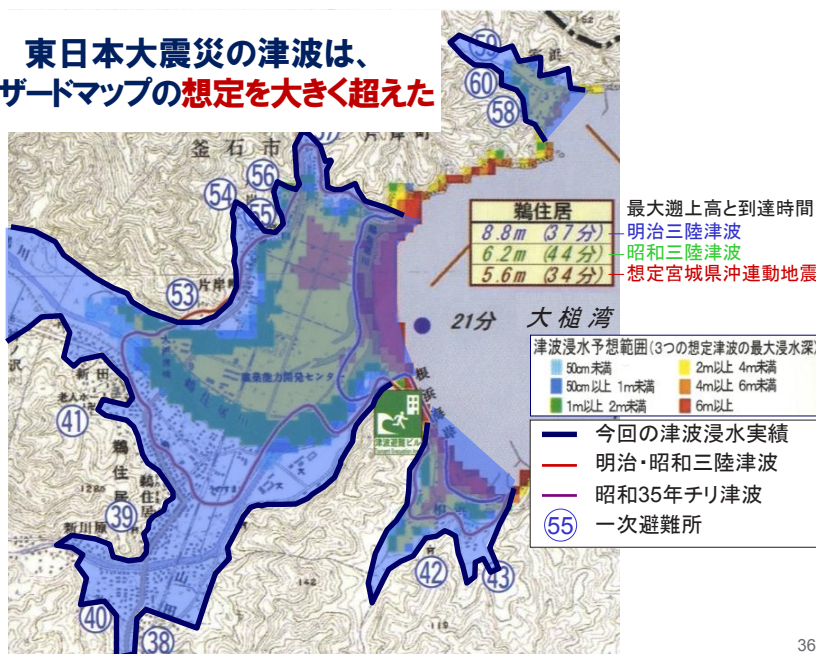
- ◎想定にとらわれるな
- ◎最善を尽くせ
- ◎率先避難者たれ

行動の**具体**ではなく、
 行動の**姿勢**を与える

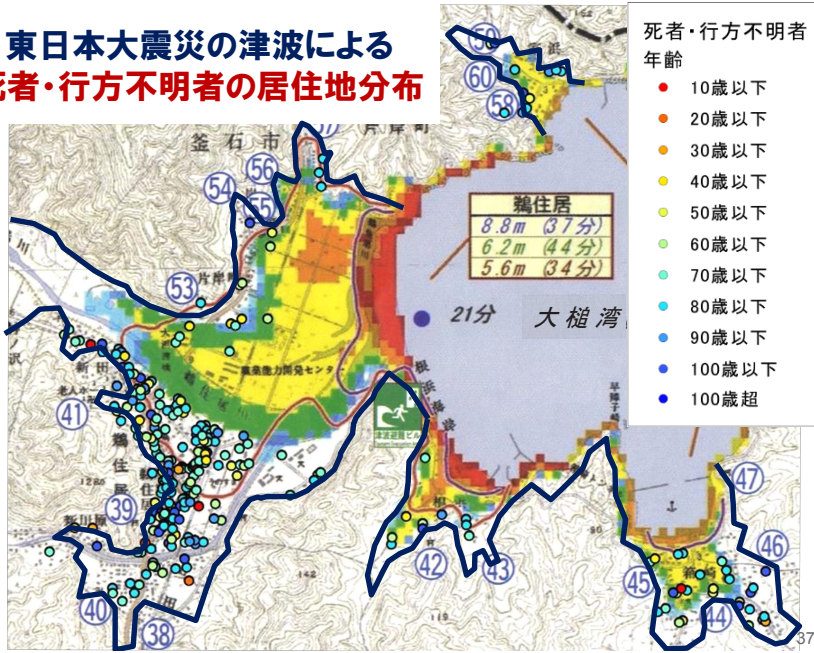
震災以前に公表されていた
 津波ハザードマップ



東日本大震災の津波は、
 ハザードマップの**想定を大きく超えた**



東日本大震災の津波による
死者・行方不明者の居住地分布



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P38

大いなる自然の営みに**畏敬の念**を持ち、
他者に委ねることなく、
自らの命を守ることに**主体的**たれ。

P39

- 避難3原則**
- ◎想定にとらわれるな
 - ◎最善を尽くせ
 - ◎率先避難者たれ

行動の**具体**ではなく、
行動の**姿勢**を与える

釜石市での津波防災教育

P40

× 脅しの防災教育

恐怖喚起のコミュニケーション

＝外圧的に形成される危機意識は長続きしない

△ 知識の防災教育

＝与えられる知識は主体的な姿勢を醸成しない。

災害イメージの固定化をまねく・・・**想定にとらわれる**

主体的な姿勢があって初めて有効となる知識

◎ 姿勢の防災教育

防災に対し主体的な「姿勢」を醸成する

40

“これまで”の防災教育

P41

脅しの防災教育

この地域は危ない地域です



ここは危ない所なんだ…
こんな町は嫌だな…
住み続けたくないな…

地域に対する誇りや愛着を失わせるデメリットが大きい

41

釜石市での津波防災教育

P42

× 脅しの防災教育

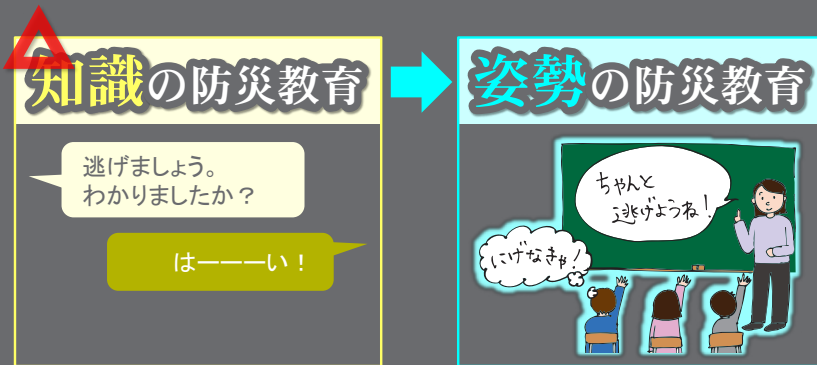
その地に住もう **お作法** の教育



42

“いま求められる防災教育”のあり方

P43



内発的な行動意向の醸成をめざした
コミュニケーション

43

姿勢の防災教育

内発的な避難意識を子どもたちの心に育む

どうすれば良いか？

→子どもたちの共感を得るコミュニケーション



説得

子どもたちに災害による命の危険を語り、避難の必要性を説得しても効果は期待できない

納得

子どもたちにとって身近な存在である親との関わりで自らの命を守る必然性を理解させること

44

家族の命を通して内発的な避難意識を醸成

P45

もし、君たちが家で待っているような子だったら、
君たちのお父さんお母さんは、
そのとき どうするだろう？

迎えにきちゃう…

どうしたら
いいだろう？



写真) 釜石市立鶴住小学校(5年生)での防災教室。(2008.11.07)

45



03:07

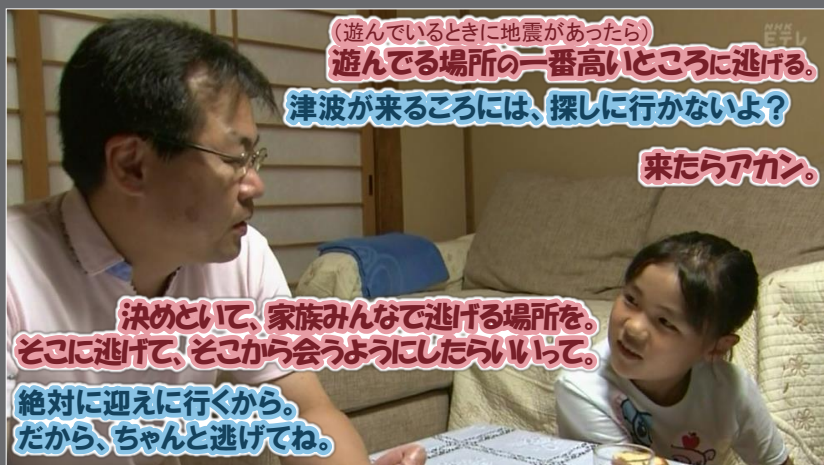
田辺第一小学校・高雄中学校
(シンサイミライ学校)



引用) NHK「シンサイミライ学校 楽しく！真剣に！学ぼう！BOUSAI」 2012.08.15放送

46

田辺第一小学校・高雄中学校
(シンサイミライ学校)



(遊んでいるときに地震があったら)
遊んでいる場所の一番高いところに逃げる。

津波が来るころには、探しに行かないよ？

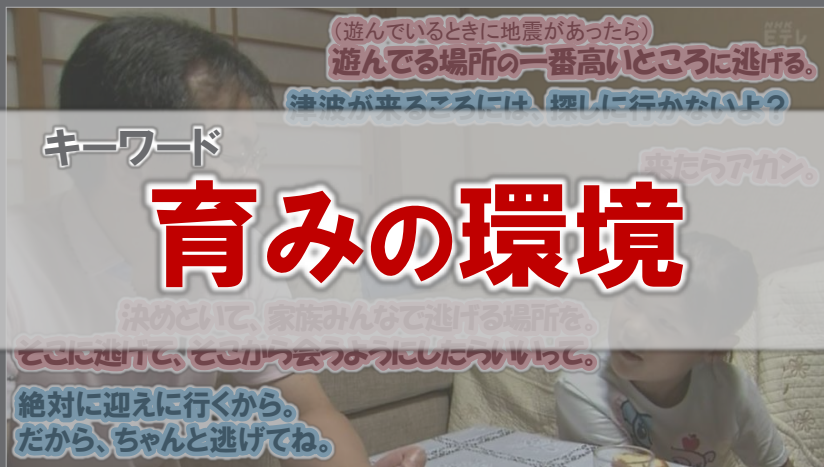
来たらアカン。

決めといて、家族みんなで逃げる場所を。
そこに逃げて、そこから会うようにしたらいいって。

絶対に迎えに行くから。
だから、ちゃんと逃げてね。

47

田辺第一小学校・高雄中学校
(シンサイミライ学校)



キーワード

育みの環境

(遊んでいるときに地震があったら)
遊んでいる場所の一番高いところに逃げる。

津波が来るころには、探しに行かないよ？

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絶対に迎えに行くから。
だから、ちゃんと逃げてね。

48

3.11 前 釜石での最初の取組

大人を対象とした防災講演会



参加者は、もともと興味・関心のある住民
何度やっても同じ顔ぶればかり

49

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明治29年（1896年）明治三陸大津波

犠牲者 22,066人



50

P50

期間

1978年着工
2009年完成

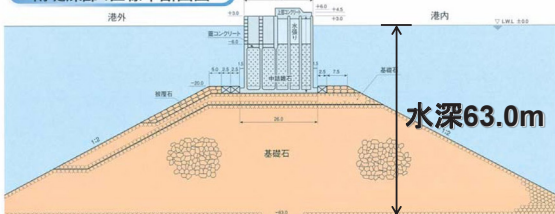
総工費

1,200億円
以上

釜石湾 湾口防波堤



南堤深部4区標準断面図



ギネス認定

世界で
一番深い防波堤

51

P51

「避難しない」環境で育まれた子どもたち

P52



昔から津波が何度も来ていることは知っているかい？

知ってるよ

地震が起きたり、津波の情報が出たら逃げるかい？

逃げないよ

なんで逃げないの？

だって、お父さんも、おじいちゃんも、
みーんな逃げないよ。

それにね、世界一の堤防ができたから
もう大丈夫なんだよ。

52

3.11 前 釜石での最初の取組

P53

大人を対象とした防災講演会

あなたたちの姿勢が
子どもたちを避難させなくさせている



53



東北太平洋沿岸＝津波常襲地域

P54

過去の津波で、生き残った人々が後世のために残した石碑が多く建てられている。



高き住居は
見孫の和樂
想へ惨禍の
大津浪
此処より下に
家を建てるな

宮古市姉吉 大津浪記念碑

54

石碑を残した先人に想いを馳せる

P55



55

「助けられる人」から「助ける人」へ

P56

先人の想いを地域に伝える

先人の想いを教えるために、中学生が、小学生や幼稚園の子供たちに防災教育を行った。

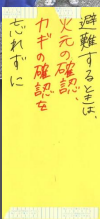
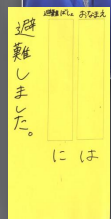


56

「助けられる人」から「助ける人」へ

P57

地域の一員としての役割を担う “地域みんなで助かる”



率先して避難したり、
リヤカーを使って、
避難を支援する訓練

高齢者宅を訪問し、
安否札を配布

57

釜石市での津波防災教育

P58



地域住民を巻き込む



防災を通じた地域づくり・まちづくり

P59

地域防災・防災教育を通じてより良き子ども・大人へ

褒められた喜びから
(自己肯定感の高まり)
防災に熱心に取り組む

子どもたちの取組を
心から褒める



大人たちの背中から
この地で生きるための
作法を知る

子どもたちに
背中を見せるべく
防災に熱心に取り組む

59

防災を通じた地域づくり・まちづくり

P60

防災を通じて醸成される子どもたち・大人たちで
構成される町ができたなら

災害文化



災害にも強いまち



※ 将来の地域を背負って立つ市民は、
今の子どもたち

60

思い合う環境に子どもを育み、
その継続が災害に強い社会をつくる

P61

キーワード **育みの環境（防災教育）**

10年経てば大人になる
さらに10年経てば
親になる



P62

ご清聴ありがとうございました

2

The Educational Model that Allows Students to Learn Self-help in Elementary School and Develop the Ability to Help Each Other in Secondary School.

Speaker

Nakamura Yuma

Miyake Hidenori



台湾教育部防災教育国際フォーラム

中島小・中学校防災探究学習の取り組みについて ～私たちにできること～

防災学習担当

静岡市立中島小学校 中村 雄真

静岡市立中島中学校 三宅 秀典

令和4年3月28日

本日の発表

- 1 中島小・中学校の地理的特徴
- 2 中島小・中学校のこれまでの歩み
- 3 中島小学校の実践
- 4 中島中学校の実践
- 5 防災学習をどう進めればよいか

中島小・中学校の地理的特徴

中島中学校
海から約500m
海拔4m



中島小学校

中島中学校

中島小学校
海から約800m
海拔5m

大地震直後に大津波が来る地域

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中島小・中学校は、2017年度から、静岡型小中一貫教育の先進校として「**防災学習を軸とした小中一貫教育**」に地域とともに取り組んでいます。

静岡県では、12月の第1日曜日は**地域防災訓練**（午前）を全県で地区ごとに行います。

中島小中学校は、小中一貫教育のスタートとして、5年前（2017年）から、この日を**授業日**とし、全員が訓練に参加しています。

防災の日：午前中



中島小・中 全児童・生徒が
各地域防災訓練に参加



P7

防災の日：午前中



P8

防災の日：午後



家族地域参観会
(1年生～9年生)



P9

中島小中学校 9年間の防災学習カリキュラム (しずおか学/選択的内容) 詳細版・令和元年度		行事等との関連性	教科との関連性
防災学習の単元の流れと時間割(目安)(学活・総合)			
1年	地震のことを知る(1) ・地震が起きたらどうなるのかを知る。 ・地震や津波の様子を写真・動画で見ると知る。	・年5回の津波避難訓練(全学年)	理科 国語 体育 音楽 図画 英語 総合
2年	「学校のどこが危険か」について知る(1) ・学校の危険箇所を地図上で探し、危険箇所の分布を把握する。	・地域防災訓練への参加(全学年)	国語 理科 体育 音楽 図画 英語 総合
3年	「学校のどこが危険か」について知る(2) ・グループに分かれ、学校の危険箇所を地図上で探し、危険箇所の分布を把握する。自分の身のまわりの危険箇所を把握する。	・派っ子防災(児童会・縦組)の防災マップ作り(1~6年)	国語 理科 体育 音楽 図画 英語 総合
4年	「学校のどこが危険か」について知る(3) ・グループごとに、自分の身のまわりの危険箇所を把握する。自分の身のまわりの危険箇所を把握する。	・防災ボックス作り(全学年)	国語 理科 体育 音楽 図画 英語 総合
5年	「学校のどこが危険か」について知る(4) ・グループごとに、自分の身のまわりの危険箇所を把握する。自分の身のまわりの危険箇所を把握する。	・着衣体(4年・6~9年)	国語 理科 体育 音楽 図画 英語 総合
6年	「学校のどこが危険か」について知る(5) ・グループごとに、自分の身のまわりの危険箇所を把握する。自分の身のまわりの危険箇所を把握する。	・AED(心肺蘇生訓練)(5年・6年)	国語 理科 体育 音楽 図画 英語 総合
7年	「学校のどこが危険か」について知る(6) ・グループごとに、自分の身のまわりの危険箇所を把握する。自分の身のまわりの危険箇所を把握する。	・学校保健委員会(5年・6年)	国語 理科 体育 音楽 図画 英語 総合
8年	「学校のどこが危険か」について知る(7) ・グループごとに、自分の身のまわりの危険箇所を把握する。自分の身のまわりの危険箇所を把握する。	・しずおか学(5年・6年)	国語 理科 体育 音楽 図画 英語 総合
9年	「学校のどこが危険か」について知る(8) ・グループごとに、自分の身のまわりの危険箇所を把握する。自分の身のまわりの危険箇所を把握する。		国語 理科 体育 音楽 図画 英語 総合

自分の命を守る = 自助

↓

他人の命を守る = 共助

9年間防災学習カリキュラム

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1年生

めあて きょうしつで じしんがおきたとき、あんぜんな ひなんのしかたを かんがえよう。

- きょうしつでじしんがおきたら、きけんなところはどこだろう。
- をつけて、わけもかんがえよう。

なまえ ()

テレビ

せんせい

つくえ

こくばん

ロッカー

いす

いす

いす

○じしんにきづいたとき

←

←

←

←



P13

2年生

テーマ

「学校の様々な場 所で地震が起き た際の身の守り 方を考える」

12月3日 **ぼうさい学習** 名前

【めあて】 学校にいるとき、教室いかいの場合、じゆきよう時間いかに、地しんがおきたときのひなんのしかたを考えよう。

【もんだい】 あんぜんにひなんするには、どうすればいいのだろうか。

(1) 自分で考えてみよう。理由も考えて書こう。

ろうか	
かいだん	
体いくかん	
ふつばこ	
トイレ	
うんどう場 ゆうふ	
うんどう場 グランド	
図書館	

(2) 班で考えてみよう。場しよく)

(3) 【まどあ】 学校内で、あんぜんにひなんするには、

P14



P15

3年生

テーマ
「家の中で地震が起きた際の身の守り方を考える」

はまかせ		家の中の安全を考えよう	
		組 番	
家の中のきげんや安全たいさく、ひなんのしかたを聞き合い、自分の家の地んたいさくを考えよう。			
(1) 発表を聞いて、わかったこと・思ったこと			
【げんかん】		【かいたん】	
【台所】		【リビング】	
【しん室】		【水まわり】	
(2) 自分の家の安全たいさくに取り入れたいこと			

P16



児童

P17

4年生

テーマ
「地震が起きた際の家庭での約束を考える」



保護者

P18

5年生

テーマ 「防災マップを作り、地域の危険について考える」

- ①静岡市役所の方から、南海トラフ地震についての講話を聞く。
- ②町歩きで、地震時の危険を見つける。



- ③見つけた危険をMAPにまとめる。

- ④DIG学習



- ⑤個人で課題追究・発表

【地図上の色が表すこと】

- 赤→地震のとき危険だと思ふところ
- 青→地震のとき安全だと思ふところ
- 茶→災害時に助けてくれる場所
- 緑→地区にある防災施設

まとめ
 浜B には安全な所や逆に
 きけんなところがたくさんあります！
 たとえば、津波のみなビルなどがあり
 安全ですが、ブロックべいやせまい道
 などが きけんです！

6年生

テーマ 「災害の一局面に 直面したときの行 動について考える」

大きな地震のため、避難所（小学校）に避難しなければならない。しかし、家族同然の犬（メス3歳）がいる。一緒に避難所に連れて行く？

◆防災学習 12月1日(日)

めあて 「クロスロード」を通して、地震が発生した時に起こる問題について深く考えることができる。

6年 組 名前

もんだい 自分だったら、「YES」と「NO」どちらだろう。

1 クロスロードでの自分の立場とその理由を書こう。

第1問

YES	NO	理由
-----	----	----

第2問

YES	NO	理由
-----	----	----

メモ（理由など）

P22



P23

児童会による取り組み

P24





P25

**2021年度 防災BOXを見合う会
はまっ子班（たてわり）で中身を考えた。**



P26

**「浜っこ防災」
児童会主催で非常食体験を企画・運営**



P27

児童会による 防災クイズ

防災学習の成果（中島小）

- ・保護者や地域に、防災学習の取り組みが認められ、自信につながった
- ・災害を「自分事」として捉え、家族や地域のために何かしようという意識が高まった。
- ・自助から共助へ学習を発展させることができた。

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2019年度より 防災訓練を「参加」から「参画」に発展しよう！

これまで各地区の防災担当者（大人）が当日行っていた訓練の指示や説明の一部を、中学生が引き受けることに決定！

中学生は各地区ごとに当日の役割をもち、「参画」する
地域への貢献
地域の大人とのつながり
防災訓練への主体的参加
小学生のお手本



**地域防災訓練
自治会・生徒代表・担当教員打ち合わせ会**



**地域防災訓練
自治会・生徒代表・担当教員打ち合わせ会**

夏のインタビュー調査先例

- ・西島町内会長
- ・日本赤十字社
- ・東海大学海洋水族館
- ・静岡県地震防災センター
- ・サンライズ大浜
- ・アンビア（指定避難所）
- ・仙台市立高砂中教職員へアンケート
- ・中島中全3年生へのアンケート



など

P34



**矢部さん（中島学区
防災会会長）**



**清水さん（県ボラ
ンティア協会）**

P35



**小林先生（静岡大学
教育学部教授）**



**石井さん（駿河区地域
総務課 地域防災係長）**

P36



黒木さん（サンポート岡山）



ICT活用 遠隔授業

地域貢献プロジェクト①

～全住民アンケートの作成・
集計・分析と地域への提案～

中島自治会連合会長から、備蓄状況を確認するための全住民アンケート作成の依頼を受ける



アンケートをどうやって作成しよう？



ネットですでにあるものを複数検索し、比較



各家庭に備蓄すべき必要最低限のリストを
地域と協働で作成



全家庭分印刷し、配布（4828世帯）

複数のすでにある備蓄リストを比較し、中島に必要なリストを作る



年明け、アンケートを回収・・・(2879枚)



1年生全員で手分けして集計・分析



年明け、アンケートを回収・・・(2879枚)



1年生全員で手分けして集計・分析



分かったこと

- ・懐中電灯やポリ袋などの備蓄率は高い
- ・簡易トイレ、防寒シートなどの備蓄率が低い（各地区40%以下） など

地域貢献プロジェクト②

～リアルな防災対策を提案～

探究テーマ

「中島中学校にいたるときに大地震が起きた場合、どう生き抜くか？」



3つのチームを作成

- A・・・中学校に備蓄すべきものを考える班
- B・・・3階と4階の使い方を考える班
- C・・・地域住民の避難者数を調査する班

Aチーム調査

- ・中島小に9000人分の備蓄、**中島中に0**

Bチーム調査

- ・**防音部屋**の活用方法、**4階プール倉庫**の活用方法

Cチーム調査

- ・**およそ100人くらい**の周辺住民が中島中へ避難してくる予想

3つのチームを作成

- A・・・中学校に備蓄すべきものを考える班
- B・・・3階と4階の使い方を考える班
- C・・・地域住民の避難者数を調査する班



A + B + C = 何が言えるか？

それぞれに話し合い、考える

最終的に6つの提案にまとめた



- 1 中島小にある備蓄の一部を中学校へ移動すべき
- 2 防災BOXを防災BAGにバージョンアップすべき
- 3 外の倉庫にあるろ過装置を3階へ移動すべき
- 4 被災時の避難生活場所を決めておくべき
- 5 3階・4階のスペアキーを3階に保管すべき
- 6 教師・生徒・保護者合同の防災組織を作るべき

地域・行政・学校長に対し、1年生が2つのプロジェクトの成果と提案事項を発表



報告会を行った結果・・・



- 中島小の備蓄を中学校に一部移動することについて、行政・地域・学校が合意し、3週間後に移動！
- 同じ時に、外の倉庫にあるろ過装置を3階へ移動！

防災探究学習で学んで実践したことが、地域と行政を動かすことにつながった



中島小から中島中へ
備蓄の移動

ろ過器を外の倉庫から
3階へ

昨年度のテーマ（8・9年生）

地域の防災対策に中学生
として貢献しよう

中島小・中学区は全部で **6 地区**

- ・中島上 ・団地 ・中島中
- ・中島浜 ・西脇 ・西島

それぞれの地区ごとに 8・9 年生が合同で
探究学習を行った（縦割り学習）



学んだことを、各地区の防災訓練に活かす
午後の発表で地域の大人に提案する

5 月

**地域にはどんな課題があるのか
調査**

**全ての地区で、防災に関
するアンケートを取った**

6～8 月

**アンケートをもとに、地域貢献に
必要な情報収集**

- ・ネット検索
- ・自治会の方へインタビューなど

9月

地域貢献活動について、地域の方々に質問

- ・各地区の自治会長や防災担当者と会合

10月

地域防災訓練の打合せ会

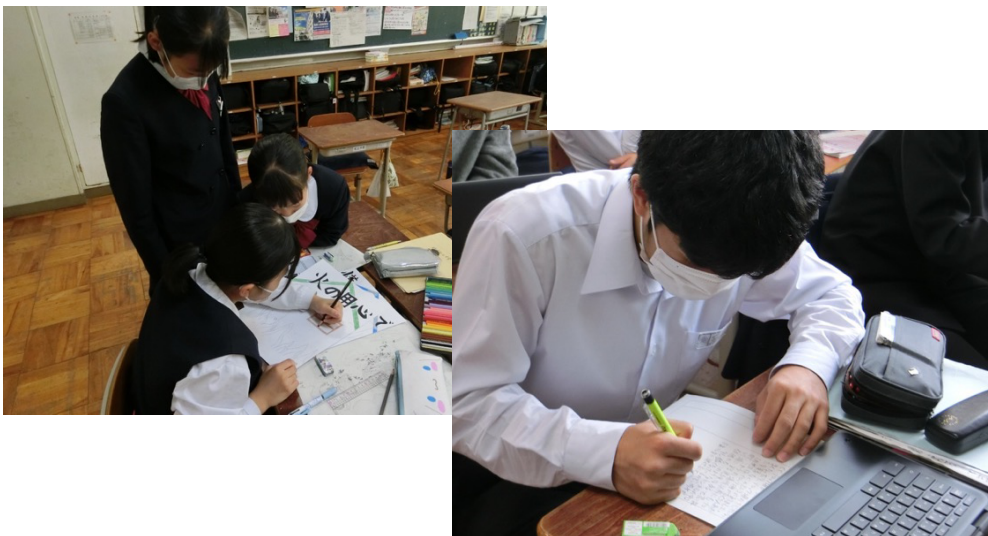
- ・安否確認を小中学生が手分けする
- ・消火訓練や担架搬送訓練の手伝いを中学生が担当
- ・炊き出し訓練の手伝い など





10～11月 地域貢献活動を考え、実践

- ・危険箇所の視察し、防災マップを更新
- ・地域防災訓練への参加を呼びかけるポスター作成
- ・防災クイズブックを作成し、回覧板に回す
- ・支援が必要な人やペット同伴者の避難所支援策を提案
- ・アンケート結果をもとに、安否確認方法の提案 など





12月5日（日）

地域防災訓練

担架搬送訓練では、担架の使い方を中学生が地域の方々に教えながら一緒に行った。



12月5日（日）

地域防災訓練

水消火器訓練では、使った後の消火器に水の補充をする係を中学生が行った



12月5日（日）

地域防災訓練

三角巾応急手当訓練では、中学生が三角巾の結び方を地域の方々や小学生に教えた



12月5日（日）

地域防災訓練

三角巾応急手当訓練では、中学生が三角巾の結び方を地域の方々や小学生に教えた



12月5日（日）

地域防災訓練

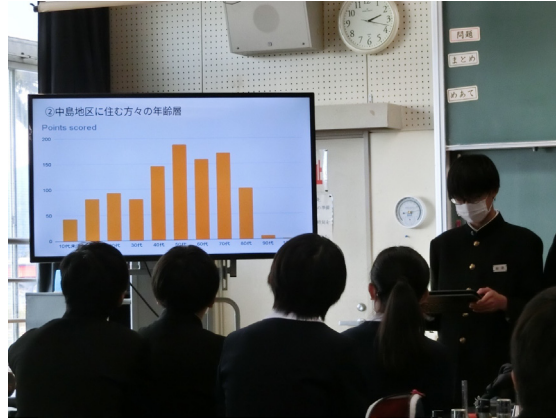
炊き出し訓練では、中学生は高校生や小学生、地域の方々と一緒におにぎりをにぎり、配った



12月5日（日）

家族地域参観会

住民に取ったアンケート結果を集計・分析して発表した班



12月5日（日）

家族地域参観会

地域防災訓練の参加人数を増やすために、新しい訓練の提案をしている班



12月5日（日）

家族地域参観会

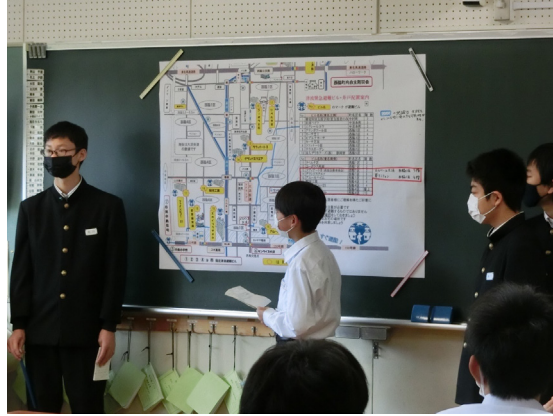
訓練の一つの提案として、布を使って応急処置の仕方を実演している班



12月5日（日）

家族地域参観会

街を歩いて更新した防
災マップについて、詳
細を説明している班



12月5日（日）

家族地域参観会

一次避難場所の一つ
である保育園の屋上
の様子を詳しく伝えて
いる班



地域のための学習を通じて

- ・地域の課題について考える機会になった
- ・地域の方々と話す機会が増え、身近な存在になった
- ・防災訓練の運営側にまわり、地域に貢献しようという気持ちが高まった
- ・これからも防災について関心を高めようと思った

本日の発表

- 1 中島小・中学校の地理的特徴
- 2 中島小・中学校のこれまでの歩み
- 3 中島小学校の実践
- 4 中島中学校の実践
- 5 防災学習をどう進めればよいか

防災学習をどう進めればよいか

防災学習

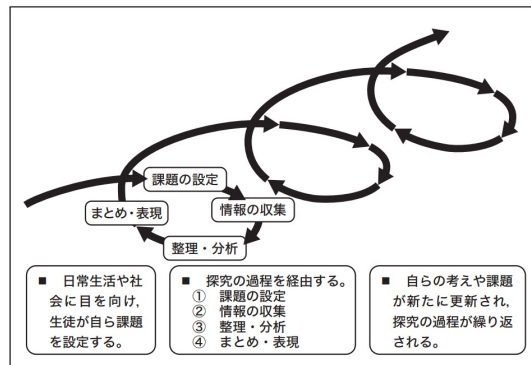
+

探究学習



教師≠teacher
 教師=coordinator
 教師=facilitator

探究における生徒の学習の姿



総合的な学習の時間編 高等学校学習指導要領（平成30年度告示）解説

3

How to Enable High School Students to Engage in Disaster Prevention on Their Own.

Speaker

Fujimoto Yuma



P1

静岡県立駿河総合高等学校

静岡県唯一の都市型総合学科

共生教育（特別支援学校併設）

ユネスコスクール認定



P2

静岡県立駿河総合高等学校



産業社会と人間



総合的な探究の時間

P3

問題解決に必要な力

Action

物事を自分ごととして捉えて
自ら行動する

Thinking

論理的・計画的に物事を考える

Teamwork

グループ内で多様性を認め、協働する



総合的な探究の時間

問題解決に必要な力

当たり前を疑う

根拠をもとに考える

ストイックに行動する



MIRAI SHEET



ディベート

P7

ディベート

論理的思考

多面的見方

情報収集分析力

P8

総合学科の必修科目



産業社会と人間

自己の生き方を探究する

職業の選択決定に必要な能力・態度
将来の職業生活に必要な態度や
コミュニケーション能力を養う

P9

総合学科の必修科目



産業社会と人間

普段の授業

指定のテキストを使用し学習したり、
外部講師を迎えて講演していただくことも多々あります。

まとめどり

定期テスト終了後、産業社会と人間という科目を
追求する期間があります。

産業社会と人間 ～ 普段の授業～

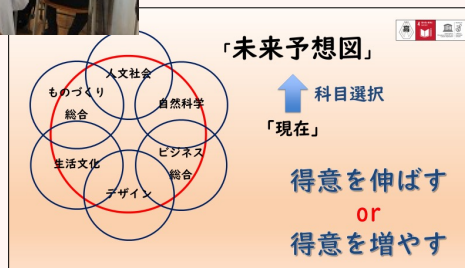
市内在住のイスラム教徒
「多文化共生」



外部講師による
講演会

産業社会と人間 ～まとめどり～

科目選択
ガイダンス



社会人講和

P16



保育実習

P17

静岡大学教育学部藤井基貴研究室

P18

保育実習から学んだこと

自分たち自身が防災の知識を再認識することができた

『ルールの簡易化』
『体を動かして遊べる』等の工夫

小さい子に向けて
防災知識を説明することの難しさ

P19

校内活動から校外活動へ

P20

NPO法人

NEW UNIVERSAL ACT



P21

NEW UNIVERSAL ACTとは何の組織？

普段は、防災・減災活動に取り組んでいる

New

常に新しいものを

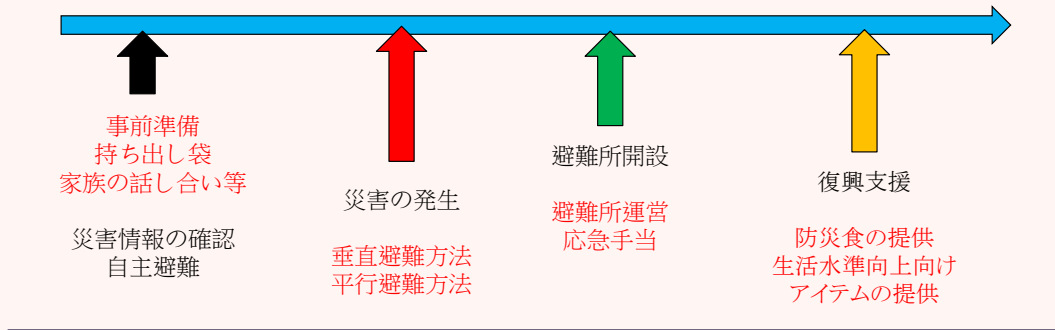
Universal

多くの人に
(世界的に)

Act

行動する
(発信する)

災害の瞬間からの防災



若者×防災×〇〇

若者×防災×地域



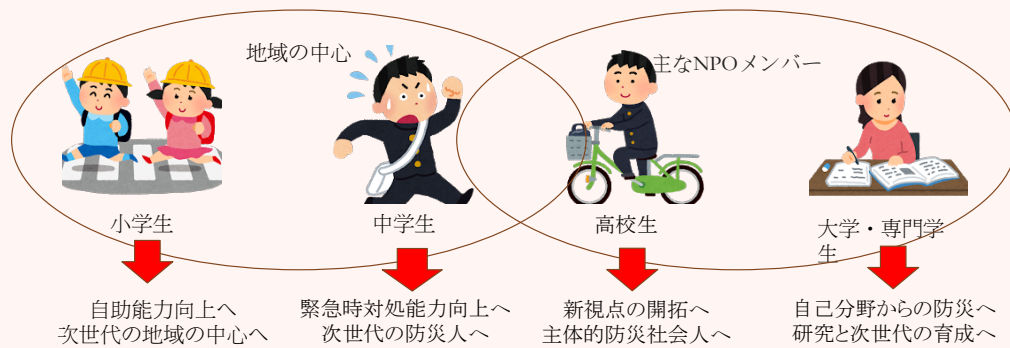
若者×防災×行政



若者×防災×教育



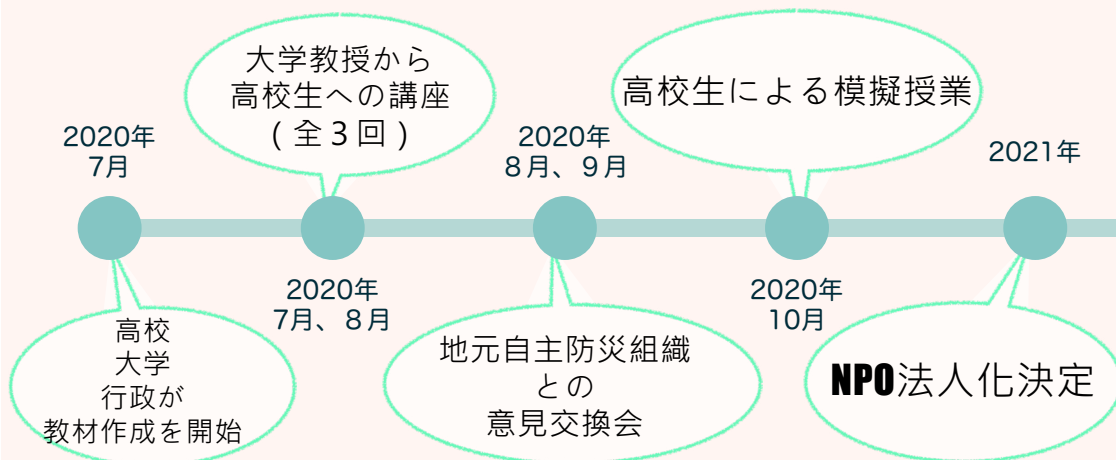
小中高大一貫連携



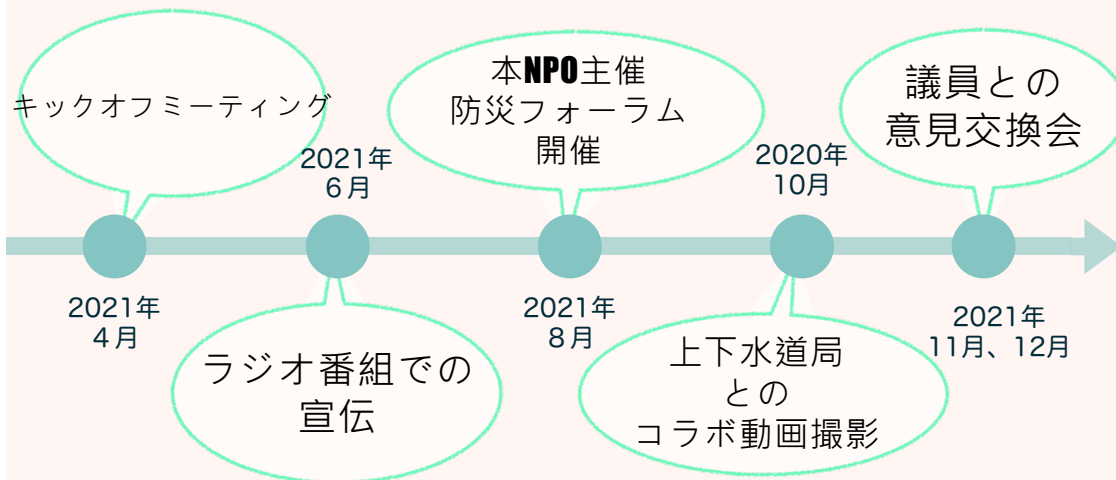
活動のきっかけは？



組織立ち上げまでの軌跡



今年度の活動



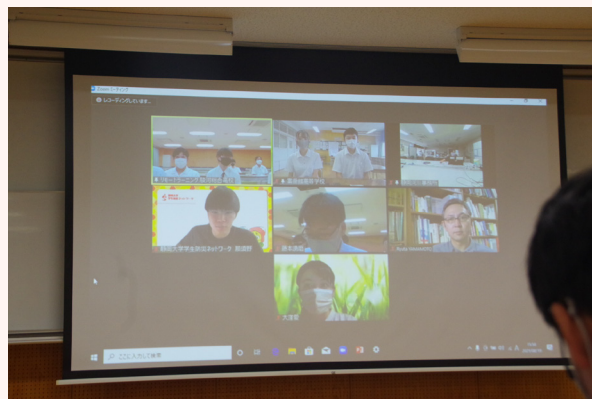
キックオフ ミーティング



ラジオ番組での 宣伝



防災フォーラム





上下水道局
コラボ動画

P31



議員との
意見交換会



P32

4

Education and Practices of Disaster Risk Reduction on the Pacific Islands:

**A Special Course Enabling All
Children to Survive the Great East
Japan Earthquake.**

Speaker

**Dr. Pauline W. U. Chinn
Dr. Alyssa Anderson**



4-1
P1



Earthquakes and Tsunamis in American Samoa: The roles of place-based curricula and teacher leaders in safety awareness and pro-active planning

Pauline W. U. Chinn
University of Hawai'i at Mānoa
International Conference on School's Disaster Risk Reduction
and Resilience Education in Practice
Ministry of Education, Taipei, Taiwan
May 6, 2022



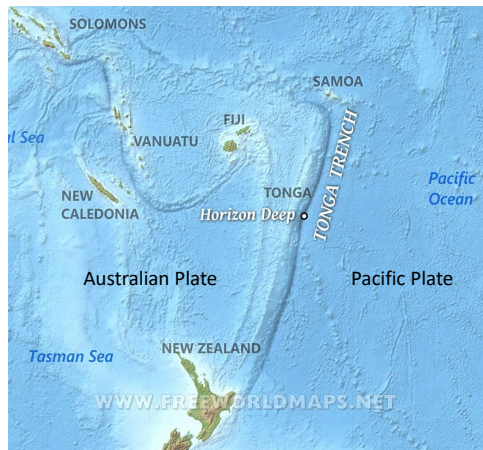
Mr. Taua'i, Leone Falls
(Photo: P. Chinn)

P2

Archipelago of Samoa and American Samoa: Wellspring of Polynesian culture with Fiji & Tonga



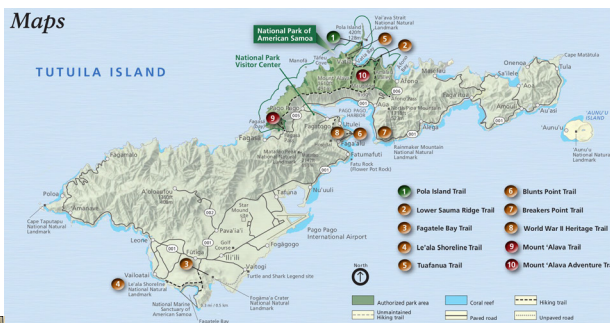
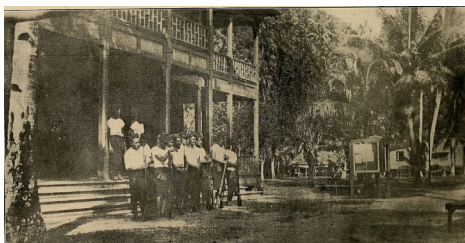
MAP IV.—SKETCH MAP ILLUSTRATING THE CENTRAL POSITION OF SAMOA IN THE PACIFIC
1934 Sketch map of the [Samoa Islands](#) in the Pacific (Source Wikipedia)



P3

Introducing American Samoa

- 7 islands 14.3 S, 170.7 W, 199 sq. miles
- [Tutuila Island 32 km long, five volcanoes](#)
- 9-km wide caldera of central Pago shield volcano forms Pago Pago Harbor.
- Last known eruption 440 CE
- First settled ~3,500 years ago
- [Origin of Polynesian culture](#): Samoa, Fiji, Tonga via trade, intermarriage, conflict



(Source U.S. National Park Service)

- 1900 American Samoa (AS) US Territory
- Strategic location
- Military base at Pago Pago Harbor
- Mangroves cleared, wetlands filled

Left: Soldiers in Samoan Army, Pago Pago, 1907 (Source: Wikimedia)

Resources for Science Education: Place-based Problems & Issues

THREATS TO SAMOAN CULTURE

- Post-WWII US lifestyle, English language education
- Urban, monetary economy
- TV, internet, fast/processed foods
- Loss of language, ancestral knowledge & practices
- Loss of stories with ecological information

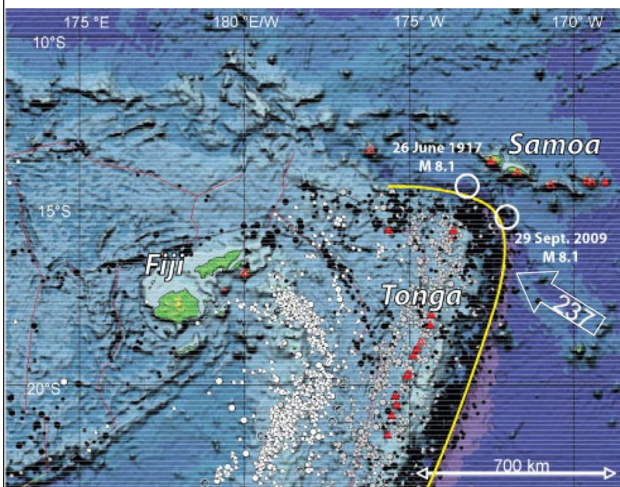
THREATS TO SUSTAINABLE SOCIAL ECOSYSTEMS

- Pollution, littering
- [Health](#): 94% obese, 73-yr lifespan
- Sea level rise, intrusion into aquifers
- Loss of mangroves: destabilized coastlines, fisheries
- Climate change: coral reefs, severe weather
- **Geohazards: Earthquakes, tsunami**



Pago Pago Harbor, caldera of Pago Shield Volcano, Photo Tavita Togia. Wikimedia

Plate tectonics, earthquakes and tsunamis in American Samoa: Reasons for place-based curricula with geohazard risk reduction



1. Samoa ~ 130 km from bend in Tonga Trench (Yellow line)
2. 2009 tsunami arrived 10-20 min after shaking stopped
3. Official warning 16 min after EQ
4. Deaths: Samoa (149), AS (34), Tonga (9)

Map Key:

- White circles = epicenters of 8.1 M 2009, 1917 EQs.
- Arrow direction/speed (23.7 cm/yr) of world's fastest plate convergence
- Pacific plate ripping: south subducting under Australian plate, north continuing west.
- Mantle seismicity 10 times any other subduction zone.
- Dots = EQ epicenters; larger = greater magnitude
- Red triangles = volcanoes.

Sources: [Hrubcová & Vavryčuk, 2021](#), [USGS, 29 September 2009, Mw 8.0, Samoa Islands](#)

ADDING A (ANCESTRAL) TO STEM CURRICULA

STEAM Professional Development (PD) Model

- Place-based
- Culturally and linguistically sustaining
- Communities of practice
- Teacher agency: identify place-based resources and issues, incorporate in culturally sustaining curriculum oriented to sustainable, resilient social ecosystems.

2018-2020 M.Ed. Place-based, Sustainability Cohort

23 teachers

EDCS 640P(SUST) Place-based Education

EDCS 623 (SUST) Science Curriculum

Teachers identify issues, write place-based curriculum, assess student engagement & learning through indigenous and institutional lenses. Topics: mangrove restoration, plastic pollution, food sustainability, stream health, archeology and earth science

Focus: Place-based, geohazard + archeology curriculum



Tsunami damage in Pago Pago
On September 29, 2009, two earthquakes in close succession generated tsunami up to 22 meters (72 feet) killing 149 in Samoa, 34 in American Samoa, and 9 in Tonga. Source: [On This Day: 2009 Samoa Islands Tsunami](#)

3 PD Strategies: STEM to STEAM

Savali, Pritchard-Sua discover Leone Village rich resource for transdisciplinary earth science (ES) & archeology curricula

1. Community mapping: *Nānā i ke kumu*, look to the source

- Identify local resources & issues: archival research, interview elders
- 2009 8.1 EQ, tsunami, no warning system; Tataga Matau adze quarry, “discover” archeologist in Leone, traditional stories.

2. Curricular mapping: *Imi 'ike*, seek knowledge

- Intersect place, stories, cultural & content standards
- ES unit on EQ, tsunami, Tonga Trench, escape routes;
- Archeology unit with place names, cultural stories, Indigenous STEAM;
- Develop local science capacity via place-based partnerships, co-constructed STEAM lessons.

3. Place-based pedagogies: *Mālama i ka 'āina*, care for the land

- New sites for teaching/learning of community-based STEAM issues.
- New networks of teacher/school/community resources.

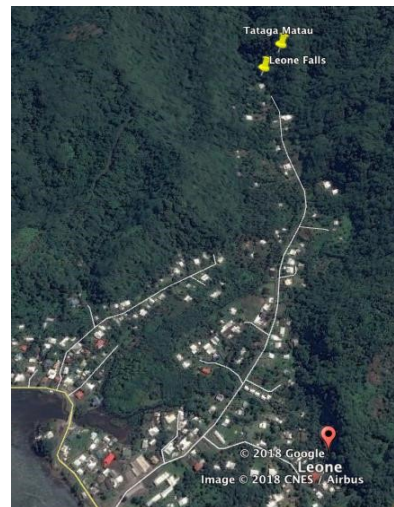


Fig. 1 Leone Village (Source: Savali and Pritchard-Sua)

Leone Village: Resource for transdisciplinary earth science, archeology, language arts curricula

Methodology: Case Study

Participants: Convenience sample

- Ms. Savali and Pritchard-Sua from Leone 2 of 23 teachers
- Mrs. Epifania Suafoa-Taua'i: Leone archeologist, historian.

Data:

- Autoethnography: personal connections to curriculum
- Presentations
- Reflective writings
- Lesson plans
- Photos of field trips, class activities
- Field notes: teacher found coconut grown for long fibers
- Surveys
- Evaluations,
- E-mails June 2018 – present.



Photos: Teachers, Suafoa-Taua'i at Puna Mai and Puna Loa springs named after sons in story (P. Chinn)



EPI SUAFO'A-TAUA'I
Archaeologist

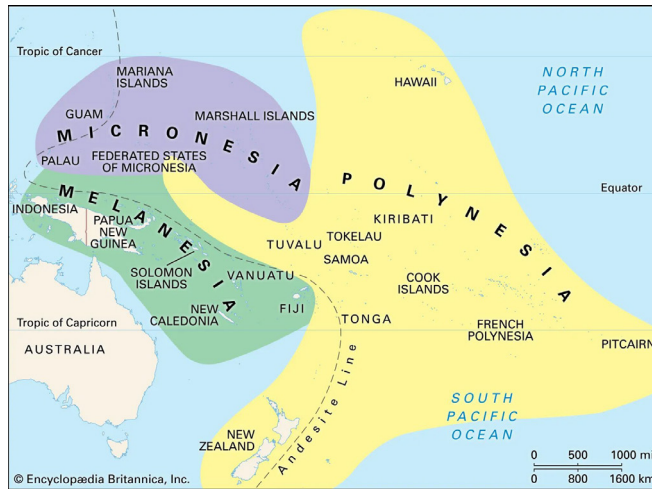
A Legend of Puna Mai and Puna Loa

Based on Oral History collected from the High Talking Chief Silivelio Suafo'a, Auma, Leone (1991)

- ✧ A family from Cook Islands traveled to Leone.
- ✧ They traded their goods for stone tools.
- ✧ The couple went to gather tools and left their two sons to wait with a sailor.
- ✧ The sons slept and the sailor wandered off to follow the smoke of the cooked umu.
- ✧ The two sons went searching for the parents in different directions – Puna Mai to the west of the Leafu stream and Puna Loa to the east.
- ✧ The parents sailed home with the stone tools then went back to search for their sons when they did not return.
- ✧ They found only water springs that sang like a weeping child.
- ✧ In an attempt to soothe the weeping sons, the mother called out.
- ✧ But the voices comforted the parents and told them that they would remain in Leone to mark their first journey to Samoa and to help the people appreciate their surrounding resources.
- ✧ The parents returned to their homeland but will always return to Leone for more stone tools knowing their sons are here.

Stories Convey STEM, Social Studies, Values, Worldviews

1. Inter-archipelago navigation: 1342 km (834 miles) AS to Cook Islands
2. Weather knowledge for long distance voyaging
3. Technology of adze production
4. Knowledge of best sources for adzes, sites of production
5. Coconut cultivars: long husk fibers for rope, fly whisk
6. Historical significance of place names
7. Insights into trading partners and valued products
8. Insights into inter-archipelago politics and economics
9. Insights into cultural values.



Source: M. Kahn, [Polynesian culture](#)

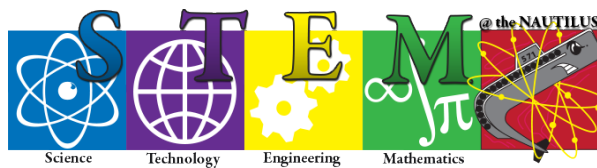
OUTCOME: Place-based curricula includes personal tsunami escape plans

Intersection of Samoan & Western place-based knowledge:

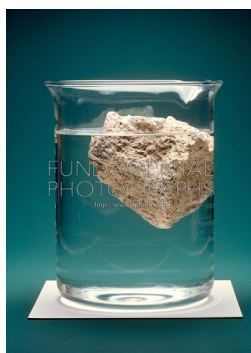
- Rock cycle, density, nutrients from igneous rocks, plate tectonics, Tonga Trench, hot spot origin of Samoan archipelago; EQs & tsunamis
- **Students plan personal escape routes at 6 hour intervals over 24 hours, create collages, share work.**
- Samoan story of adze trade between Cook Islands and Leone
- History: 2009 tsunami reached Leone Falls, 11 died;
- New FTs: Puna Loa, Puna Mai springs, grinding facets, petroglyphs, Archeology lab, AS Heritage Preservation Office;
- **Feedback: Students report gains in learning, liked creating personal scenarios of tsunami escape routes and sharing collages of their learning.**
- Future actions: restore mangroves, clean up tsunami litter.



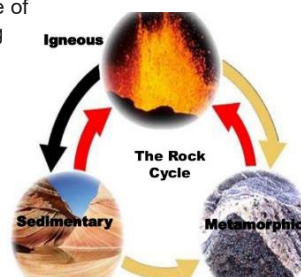
Leone Bay: Teachers on petroglyph rock, Mr. Tauga'i and polishing facets (Photos: P. Chinn)



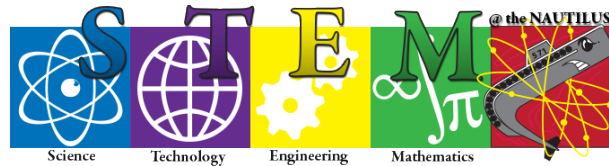
Compare the density of various types of igneous rocks found on island.



Study the three types of rocks, rock cycle and the importance of rocks to all living things including humans.

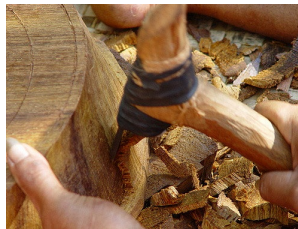


P13

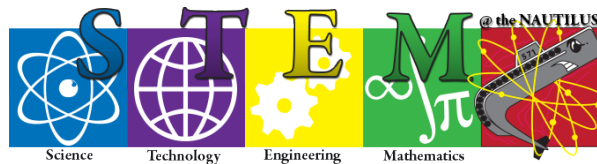


Sarah with adze-axe from Stone from tataga matau

Samoans manufactured tools, bartered, traded and introduced new plants and animals.



P14



PLACE-BASED PROBLEM(S)

- Pollution
 - ✓ Debris, contaminants etc.
- Flash flooding & Ocean Barrier
 - ✓ Wetlands, mangroves restoration
- Animal and Vegetation Restoration
 - ✓ Bats
 - ✓ Fallen trees & plants = lack of fruits

P15

Place-based PD supports teacher agency and ongoing learning

Sarah and Lutita reflect on Place-Based Curriculum:

- The development of this placed based paper using our backyard as a starting point has really opened our eyes to knowledge that wasn't known before.
- After natural disasters such as the recent Cyclone Gita, bats and birds have been in desperate search for food (Samoa News, 2018). Bats have been spotted out in the light of day scrounging on fruits of trees such as noni and the pandanus uncommon to them.
- The Tsunami of 2009 brought debris and pollution to the wetlands, beaches and ocean of Leone. Trash and debris collected at the base of the mangroves pose a threat to marine life and the filtration of contaminants that flow to our streams (Samoa News, 2017).
- A restoration of mangroves and the "pulu" tree is needed to prevent coastline erosion and storm surges.
- Much research and reading and more research in such a limited time frame has ignited in us curiosity and hunger for more depth of history and culture that we need to bring to life and make aware to our children before its goes extinct with that person that has the knowledge, but is kept secret, or finds it meaningless to share.
- Moreover, [it helps us] construct meaningful and engaging STEM based lessons that enrich students to think outside of the textbook and outside of the classroom.
- There was much more information and photos that we wanted to include in our paper, but then again time was limited.
- But this paper can be the foundation for a continuation of research, and to build upon new knowledge and to develop a complete localized STEM place-based curriculum.

P16

Final Thoughts: Iutita Savali, Sarah Pritchard-Su'a

"The development of this placed based paper using our backyard as a starting point has really opened our eyes to knowledge that wasn't known before...Time was limited but this paper can be the foundation for a continuation of research, and to build upon new knowledge and to develop a complete localized STEM place-based curriculum."

Questions to consider

1. How might my social position, identity, ethnicity facilitate or impede work with Indigenous or other minoritized communities?
2. How might I support teachers' recognition of their identities that might facilitate or impede their teaching of Indigenous or other culturally different communities?
3. What learning activities can help non-Indigenous and/or urbanized indigenous students develop a sense of place and values oriented to sustainable, resilient communities and ecosystems?



Teachers and children in the first STEM MEd Place-based Sustainability, American Samoa, 2019.

P17

**Update: 15 January 2022
Hunga Tonga–Hunga Ha'apai
eruption and tsunami**

American Samoa's warning systems and sirens installed after the 2009 EQ and tsunamis were not working when the volcano erupted.

Sarah and Iutita's place-based lessons with students' personalized escape routes at 6-hour intervals can be a lifesaver.

[Himawari-8 satellite images of the 15 January 2022 eruption of Hunga Tonga-Hunga Ha'apai.](#)

Source: Japan Meteorological Agency, CC BY 4.0 <<https://creativecommons.org/licenses/by/4.0>> , via Wikimedia Commons



Acknowledgements

The author gratefully acknowledges teachers Sarah Pritchard-Sua, Iutita Savali, archeologist Epifania Suafoa-Tau'ali, people of Leone village for allowing us to visit sites on their traditional lands, American Samoa Power Authority and American Samoa Heritage Preservation Office and support from NSF award No.1721356 *Transforming Scientific Practices to Promote Students Interest and Motivation in the Life Sciences: A Teacher Leadership Development Intervention*, 2017-2022.

4-2

P1

Hawaiian Language Immersion Earth Science Education



Waterfalls on Ko'olau mountains, Hawai'i

International Conference on School's
Disaster Risk Reduction and Resilience
Education in Practice:

Indigenous Knowledge and Disaster
Risk Reduction of Education

Ministry of Education, Taipei, Taiwan
May 6, 2022

Dr. Alyssa Natasha Anderson: University of Hawai'i at Mānoa
Dr. Pauline. W. U. Chinn, University of Hawai'i at Mānoa
W. Kalae Akioka, Windward Community College (@wcc.echs)



The Hawaiian Islands: A unique geologic setting

- Volcanoes
- Earthquakes
- Tsunami
- Hurricanes
- Landslides
- Climate change

Ka Hulihonua Hawai'i
Geology of the Hawaiian Islands

- Hawaiian Immersion Earth Science class offered at Windward Community College Early College High School
- Supports Native Hawaiian, first generation, and low socioeconomic status students in high school – college pathways
- Classes Taught:
 - Summer I 2020 - High School students
 - Summer II 2020 - Community (adults & HS)
 - **Spring 2021 - Community (adults & HS)***
 - Spring 2022 - High School students

* Conducted Educational Research

Background
Hawaiian Immersion Schools and Geosciences

Year	Hispanic	Black or African American	American Indian or Alaska Native	Native Hawaiian or Pacific Islander
2010	~5%	~2%	~1%	~1%
2011	~5%	~2%	~1%	~1%
2012	~5%	~2%	~1%	~1%
2013	~5%	~2%	~1%	~1%
2014	~5%	~2%	~1%	~1%
2015	~5%	~2%	~1%	~1%
2016	~5%	~2%	~1%	~1%
2017	~5%	~2%	~1%	~1%
2018	~5%	~2%	~1%	~1%
2019	~5%	~2%	~1%	~1%

95% of students in Hawaiian immersion programs are of Native Hawaiian ancestry

Native Hawaiian & Pacific Islander students are underrepresented in geoscience

Educational Research



Setting: Weekly online meetings in Spring 2021
 • 8 Student Participants: 4 Adults + 4 High School students

Methods: Class work, discussions, surveys

Central Question: What is the learning and engagement experience for students in the Hawaiian immersion geology class?

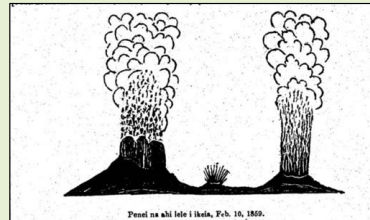
Sub Question: How might Indigenous language resources (Hawaiian newspapers) be utilized effectively as curricular resources?



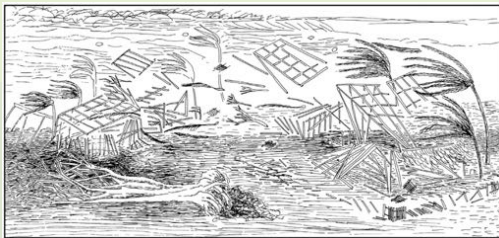
Nūpepa 'Ōlelo Hawai'i

Hawaiian language newspapers

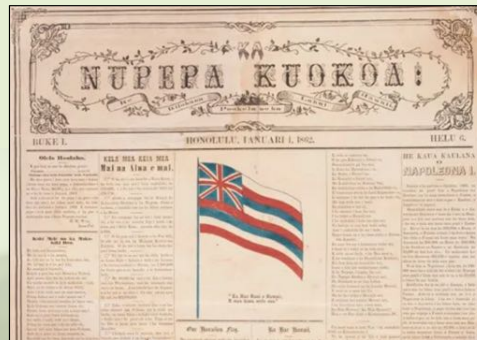
- Indigenous language writings
- 1834 – 1948, 100+ newspapers
- 125,000 pages printed
- Records of natural events by elders



1859 Eruption of Maunaloa Volcano



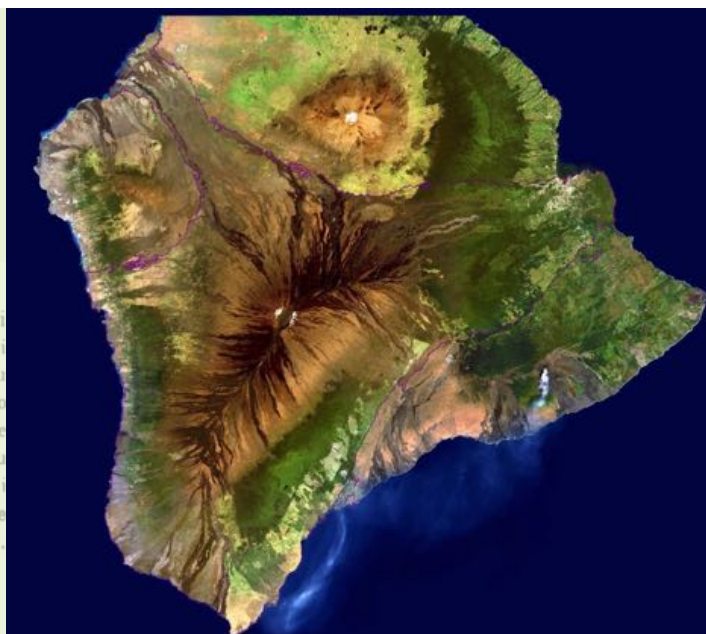
1871 Hurricane



Example of a Class Lesson: The 1868 Natural Disasters in Hawaiian Newspapers

- Students engaged with excerpts of highly descriptive texts describing the 1868 natural disasters on Hawai'i Island

Rev. L. H. KUPĪKA; Aloha oe:
 I keia kakohika Poakolu, ua hele au i
 Kau, a ma Kahoehoe halawai au me kekahi
 poe o Kahuku i Kau i subee mai i ka pau
 ana o Kahuku i ka pele; ma ka lakou olelo
 mai, ua hoomaka ka puka ana he mau mile
 elua a oi paha mai ka hale aku o Balaunu,
 kahi i hooa mai ai ke ahi, a ua kahe a hiki
 i Kalae i Kahuku; hooakahi no la o ke kahe
 ana mai kahi i puka ai a hiki i kahakai.
 Oia kahi mea hou. Aloha kuu.
 J. W. KUPĪKA.
 Kona Hea, Aperila 5, 1868.



1868 Natural Disaster

- Eruption at Mauna Loa Volcano summit



Sketch of Mauna Loa lava flow by Hawaiian scholar Joseph Nawahi, 1881

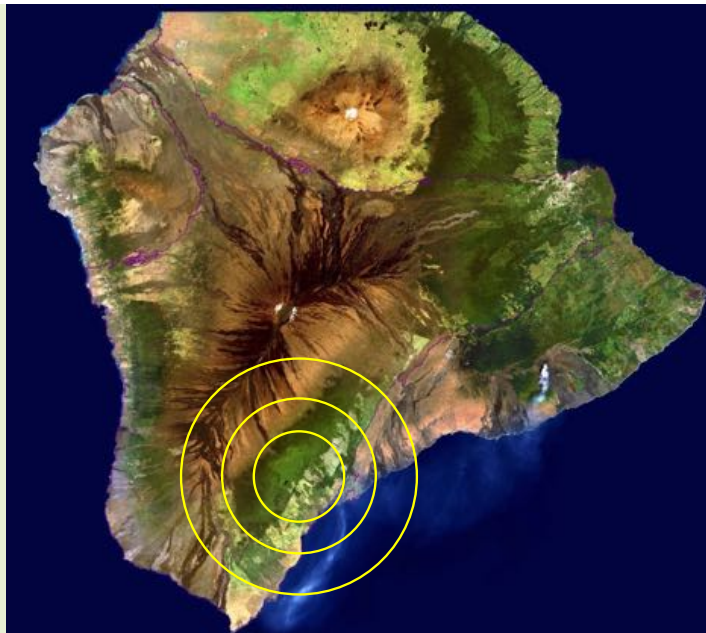


Kilauea summit eruption, 2018

USGS

1868 Natural Disaster

- Eruption at Mauna Loa Volcano summit
- 7.9 magnitude earthquake strikes Ka'ū



1868 Natural Disaster

- Eruption at Mauna Loa Volcano summit
- 7.9 magnitude earthquake strikes Ka'ū
- Landslides

Landslides on Kauai, 2021



HDOF

Ka'ū, 1868

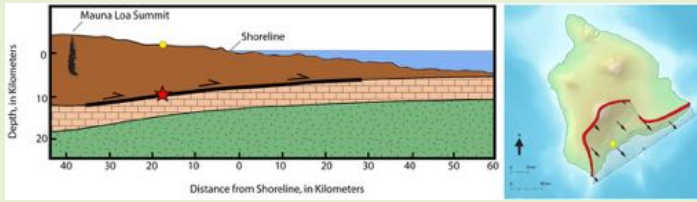


USGS

P11

1868 Natural Disaster

- Eruption at Mauna Loa Volcano summit
- 7.9 magnitude earthquake strikes Ka'ū
- Landslides
- Massive Tsunami (6m) in Ka'ū villages



P12

1868 Natural Disaster

- Eruption at Mauna Loa Volcano summit
- 7.9 magnitude earthquake strikes Ka'ū
- Landslides
- Massive Tsunami (6m) in Ka'ū villages
- Fissure eruption, lava flows to the ocean



P13

Hawaiian Song Remembering the 1868 Earthquake and Tsunami

- Elders recount the 1868 tsunami events
- Tsunami struck a prominent ancient fishing village in Miloli'i, Hawai'i
- No loss of life, lost children were found



Lā 'Elima
Elizabeth Kuahaia / Kapolilaua 'eomakana

Lā 'elima o Pepehualu (pēpē lua lī)	The fifth day of February
Waimaka helele 'i i ke alanui	Tears fell along the roadway (Tears scattered in the street)
Paiki pu 'olo pa 'a i ka lima (Maika pu olo a 'a ika lima)	Bags and bundles held tightly
Waimaka helele 'i i ke alanui! (Ae maka hele he 'e nui ike alanui)	Tears fell along the roadway

Hui:
Penei pepe 'alala nei
(He nei pepe ala 'a nei)
He hu 'i ma 'e 'ele kou nui kino
(E 'u ima e hele kou lui kino)

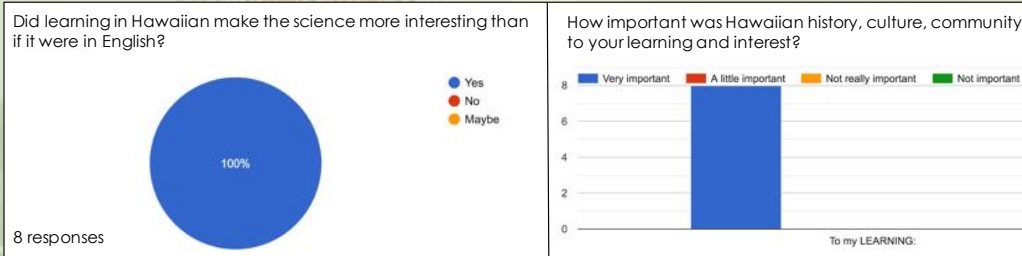
Chorus:
The babies cry
(You there Baby Crying here)
Numbing to the body
(Your whole body will ache with chills)

Ha 'ina 'ia mai ana ka puana
He mele he inoa no Miloli 'i
(E mele he noe no Milol 'i)

Tell the refrain
(The refrain is told)
A name song for Miloli 'i
(A song, a name song for Miloli 'i)

Survey Results

Interest & Learning

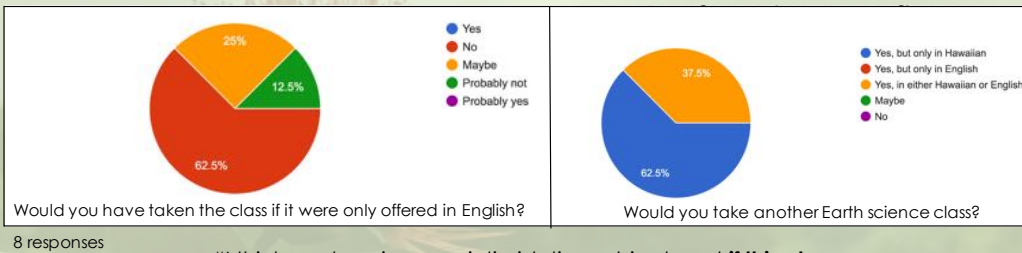


"It helped be to **reconnect to the 'āina** by learning the different inoa Hawai'i"

"words used to describe certain things in the class were far more interesting than they were in English for they had a **far deeper meaning.**"

Survey Results

Enrollment



"I think geology is a very intimidating subject, and **if this class was not offered [in Hawaiian] I probably wouldn't have taken it**"

Implications: Potential to expand the Hawaiian immersion setting to other geoscience classes

Summary

- Hawaiian immersion students find Earth science topics more relatable and interesting when they are presented in the Hawaiian language.
- Curricular resources emphasizing Hawaiian history, culture, and community is very important to student learning, interest, and engagement in Earth sciences.
- Historic Hawaiian language newspapers as curricular resources, provide insight to how Native Hawaiians viewed geologic events that are ongoing today.
- Offering Earth science classes in Hawaiian may increase enrollment of Native Hawaiian students in geosciences.

Acknowledgements

We gratefully acknowledges the students and families of the Hawaiian language immersion Earth science classes, and support from the Māla A'oa'o Kaiāulu program at the Windward Community College Early College High School



5

The roles of schools in post - disaster community recovery and DRR education

Speaker

Elizabeth Maly



P1

The roles of schools in post-disaster community recovery and DRR education

Ministry of Education, Taiwan
International Conference on School's Disaster Risk Reduction and Resilience Education in Practice

Liz Maly
International Research Institute of Disaster Science, Tohoku University
May 6, 2022

1

P2

Today's themes

The role of schools: connections from post-disaster recovery to preparing for future disaster

- Role of schools in community recovery:
the case of post-Typhoon Yolanda relocation in Tacloban City, Philippines
- Role of schools as disaster museums for DRR:
the case of post-3.11 Japan

2

P3

Self introduction

Hurricane Katrina in the U.S.

- Hurricane Katrina struck the southern U.S. when I was about to start my Master of Architecture thesis at the University of Washington (UW)
- I went to New Orleans to volunteer in Jan. 2006
- Wrote my M.Arch thesis about post-disaster housing issues in New Orleans



3

Self introduction

1995 Kobe earthquake



- I went to Kobe U as an exchange program Oct. 2006-March 2008
- study community recovery, compare New Orleans after Katrina, and Kobe after the EQ



Residents helping each other.
Photo: Ikuo Kobayashi

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P4

Kobe Machizukuri (community-building)



Photo: Ikuo Kobayashi

5

P5

PhD Research: People-centered Housing Recovery Housing recovery options that support life recovery: Reuseable/expandable housing

2006 Central Java Earthquake, when Government supported 1 step process

1 step housing recovery:
no temporary housing

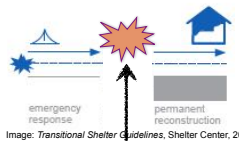


Image: Transitional Shelter Guidelines, Shelter Center, 2006



temporary housing used after Katrina was primarily FEMA trailers



temporary-to-permanent Mississippi Cottages were created by the The Mississippi Alternative Housing Program)

Temporary housing in Iwaki City, Fukushima



One innovative solution in Tohoku Fukushima Prefecture built more than 6700 wooden temporary houses (Temporary housing) + (wooden) + (local builders)

6

P6

People-centered Housing Recovery

P7



- looking at the process of housing recovery in different countries
- housing policy, life recovery support
- housing relocation and risk planning

7

Role of schools in community recovery:

Post-Typhoon Yolanda relocation in Tacloban City, Philippines

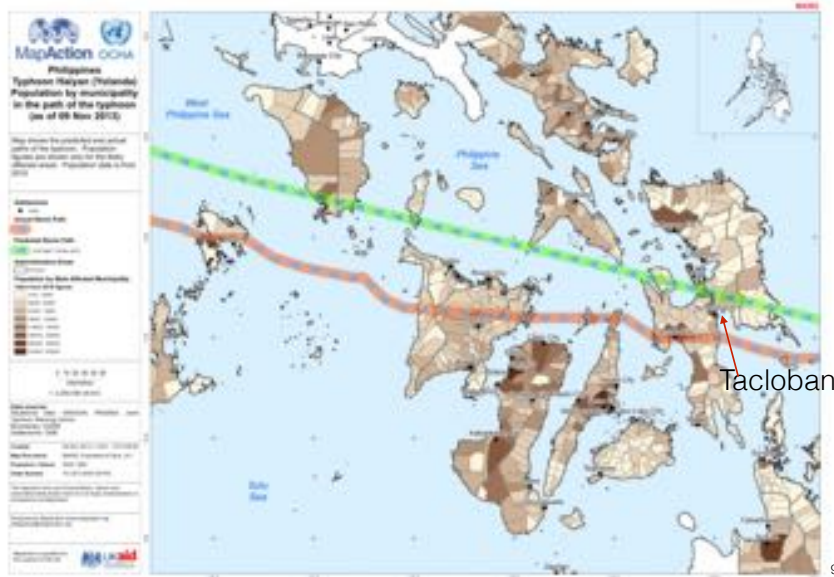
P8



8

Nov. 8, 2013 Super Typhoon Yolanda, Philippines

P9



9

Housing Damage in Tacloban City

P10

(in 2010, 221,000 pop. in 2015, 242,000 pop.)

- **54,231 houses damaged** (30,513 totally, 23,718 partially damaged)

Many communities of informal settlers in coastal areas of Tacloban City

- **Without legal land tenure**, property owned by city or private owners
- Convenient access to the city center, fishing/markets
- These areas were also the **most heavily damaged**.



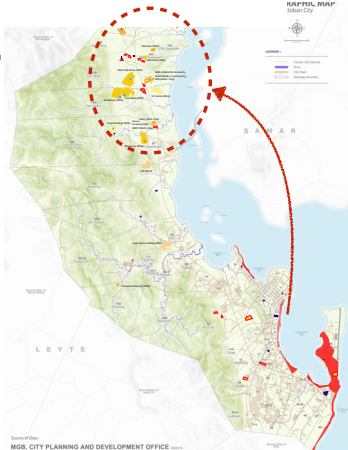
Tacloban's Housing Recovery Strategy

P11

1.



2.



- Designated “No Build Zone” in coastal areas (later No Dwelling Zone)
- Target 14,433 families from informal coastal settlements for relocation to new resettlement sites in Tacloban North

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Context of housing relocation process to North Tacloban

P12



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P13

Context of housing relocation process to North Tacloban

- Post-Yolanda recovery in Tacloban focuses on residential relocation of large numbers of typhoon affected families from coastal areas to new housing settlements in North Tacloban, with construction of new housing provided by a variety of government/NGO actors
- The relocation process is varied, with residents experiencing multiple paths from former communities, to temporary, and then permanent housing.
- Implementation of permanent housing construction is underway, and many residents are in the ongoing process of relocation.

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P14

Linkages between relocation and children's schools

- During the recovery phase, planning for new school development started after the plan for housing relocation
- Housing relocation to Tacloban north is a "push" factor
- In the process of relocation, which is complicated and chaotic, could children keep attending school?
- Where are these children of relocated families going to for their education?
- Could schools provide quality of education to these children?

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P15

Emerging issues in coastal areas of Tacloban-2015

- Coastal schools collapsed by Typhoon Yolanda were repaired and rebuilt with support from donors in 2 years since Yolanda.
- Number of pupils at coastal schools, such as Fisherman's Village ES in Barangay 88 decreased due to relocation of families from no-build zone.

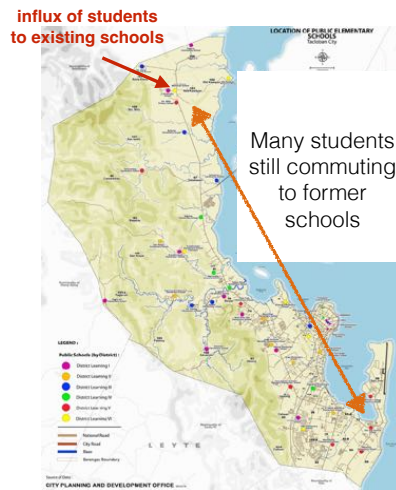


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P16

Emerging issues in North Tacloban-2015

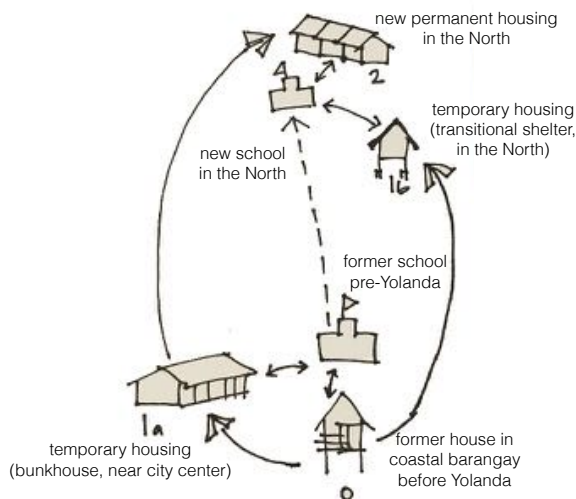
- School needs were trying to catch up to the reality of sudden influx of students population
- overcrowding at existing “receiving” schools
- Some still commuting long distance to existing “sending” schools



16

P17

2016 School Relocation Process



17

P18

School example: Kapuso Village Integrated School



- non-government provided new school;
- newly opened school with new permanent classrooms
- 24 classrooms
- now, 657 students from K-G6
- challenge to accommodate all the children moving in the settlement sites in the areas.

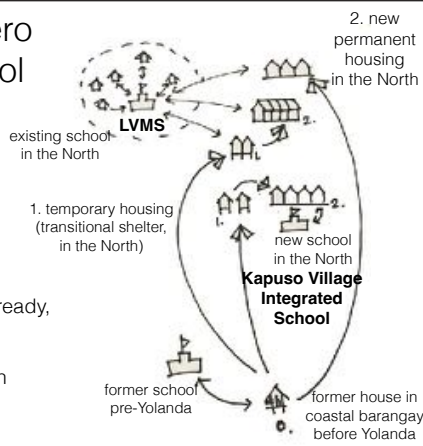
18

School example: Lucio Vivero Memorial Elementary School

- expansion of existing school
- experiencing the largest influx

2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	now
163	153	479	781	985	450

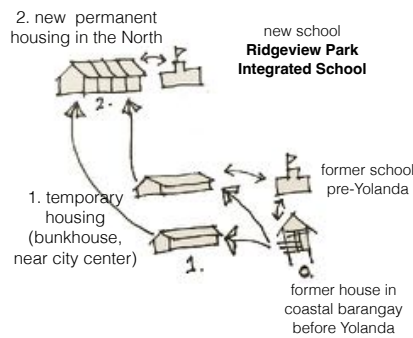
- students also moving out after GMA school ready, but more will come
- long term pace (eventual future population in nearby Villa Diana)



P19

School examples: Ridgeview Park Integrated School

- DepEd Coordinated new school
- newly opened school with temporary classrooms
- DepEd will construct future school building, will be 102 classrooms total
- now, 635 students K-grade 7



P20

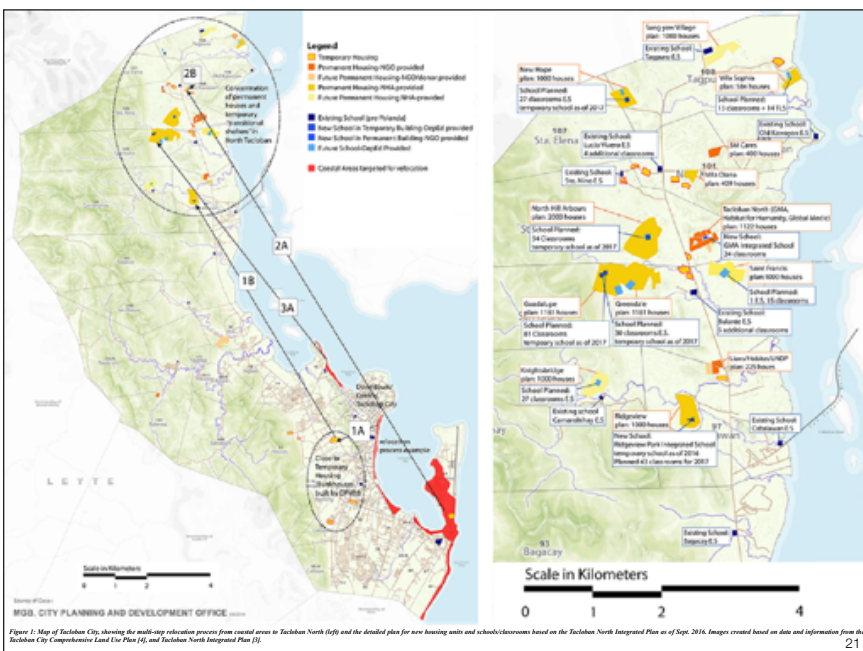


Figure 2. Map of Tacloban City, showing the preliminary relocation process from coastal areas to Tacloban North (left), and the detailed plan for new housing units and school classrooms based on the Tacloban North Integrated Plan as of Sept. 2016. Images created based on data and information from the Tacloban City Comprehensive Land Use Plan (LUP), and Tacloban North Integrated Plan (LUP).

P21

Schools as Assets in Resettlement Communities

- Considering the potential of schools to function as a center for connecting community members and placemaking activities, as well as a generator of social capital, a process of “appreciative inquiry” in several communities in Tacloban North, in collaboration with research partners at the Eastern Visayas State University.
- Focusing on schools as potential assets within resettlement communities, through focus group discussions, triangulated with interviews with residents, principals, officials and other key stakeholders, the schools can be understood as functioning as assets within their surrounding communities (Maly et al. 2021), including schools that were established pre- and post-Yolanda, as well as schools located within and nearby resettlement communities.
- Parents reported that they trust the schools and teachers, and regularly and actively participate in various school activities. In addition, under the direction and leadership of principals, function of buildings and grounds expanded beyond educational activities to other events and purposes supporting community health, well-being, governance, and social activities.
- In disaster-affected areas, recovery of education cannot be separated from local community recovery.
- In the case of resettled communities, connections between schools and housing can be even more crucial, underscoring the need for greater integration between policies and programs in education and housing sectors over multiple phases from evacuation, sheltering, transitional and permanent housing recovery and resettlement.

22

Schools as disaster museums

The case of post-3.11 Japan



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Disaster museums in Japan

Pre-3.11: 7 modern disaster museums

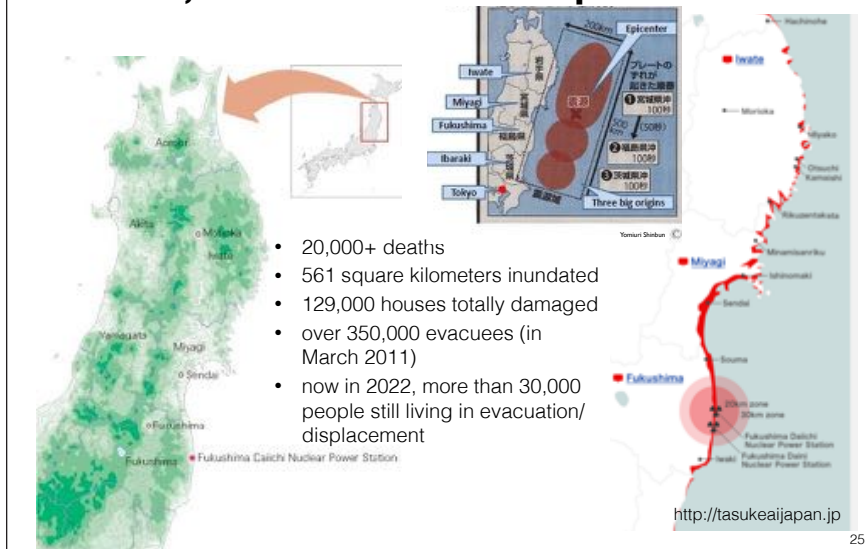


Museum name (year established)
<i>Disaster commemorated</i>
1) Earthquake Reconstruction Memorial Museum (1931) renamed Tokyo Reconstruction Memorial Museum (1951) <i>1923 Great Kanto Earthquake and fires; 1944-1945 WWII bombing, fires</i>
2) Mt. Unzen Disaster Memorial Hall (2002) <i>1991 Unzen Fugen volcanic eruption</i>
3) Okushiri Tsunami Memorial Museum (2001) <i>1993 Hokkaido Southwest Offshore Earthquake</i>
4) Disaster Reduction and Human Renovation Institution (2002) <i>1995 Great Hanshin Awaji Earthquake</i>
5) Nojima Fault Preservation Museum (1998) <i>1995 Great Hanshin Awaji Earthquake</i>
6) Chuetsu Earthquake Memorial Corridor (2011) <i>2004 Niigata Chuetsu Earthquake</i>
7) Inamura no Hi no Yakata (2007) <i>1854 Ansei Tōkai Earthquake and Tsunami</i>

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March 11, 2011 Great East Japan Earthquake, Tsunami, Nuclear Accident Triple Disaster

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Disaster museums in Japan

After 3.11: new commitment to disaster heritage

P26

Within the 7 principles for the Reconstruction Framework.
(25.6.2011 Reconstruction Design Council)

Principle 1

For us, the surviving, there is no other starting point for the path to recovery than to remember and honor the many lives that have been lost. Accordingly, we shall record the disaster for eternity, including through the creation of memorial forests and monuments, and we shall have the disaster scientifically analyzed by a broad range of scholars to draw lessons that will be shared with the world and passed down to posterity

Source: <http://www.cas.go.jp/jp/fukkou/>

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“Purpose” and “message” of Disaster Museums

Both pre and post-3.11: Disaster Risk Reduction (DRR)

P27

- Pattern of disaster museum message:
 - Explain the danger and risk
 - Tell the sad experience
 - Including the storytelling of real experience
 - Stop from repeating the same tragedy again
- This pattern set by DRI in Kobe, followed by other museums
- Strong focus on the education of children
 - Example of DRI
 - visit as children (in school trip);
 - return as adults to check how to mitigate their

27

Disaster museums in Japan

After 3.11:

- Continue this message of DRR, purpose is avoid repeating the same tragedy
- Strong government commitment (and funding support) for creating memorial facilities, (伝承館) and related activities/ organizations for telling the experiences of 3.11 (語り部)
- With the wide affected area, each town/ community tries to have their own facility—focus on the local story.
- Result is many facilities, including large open spaces



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Disaster museums in Japan

After 3.11: 3 large Prefectural-level facilities

- Created using large areas of vacant land that was the result of reconstruction/ relocation projects

みやぎ東日本大震災津波伝承館



東日本大震災津波伝承館



東日本大震災・原子力災害伝承館



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Disaster museums in Japan

After 3.11: Preserved memorial buildings used for museums, especially schools



<https://www.ttr.mlit.go.jp/shinsaidensho/facility/miyagi-3-009.html>



<https://www.city.ishinomaki.lg.jp/okawa/index.html>



<https://hokkaido005.com/en/culture/10661>



<https://note.com/hibatanbun/n/8652de4dc210>

30

Disaster museums in Japan

After 3.11: Preserved memorial buildings used for museums, especially schools

Prefectural and Municipal 3.11 Disaster Museums
Iwate Prefecture
Iwate Tsunami Memorial Museum
Former Rakuzentakata Kesen Junior Highschool
Unosumai Tsunami Memorial Hall
3.11 Great East Japan Earthquake Tono City Logistics Support Museum
Ofunato Tsunami Museum
Miyagi Prefecture
Miyagi 3.11 Disaster Memorial Museum
Ruins of Koyo High School Kesenmama City Memorial Museum
3.11 Disaster Recovery Memorial Museum
Sendai 3.11 Memorial Community Center
The Ruins of Arahama Elementary School
Millenium Hope Hill Aino Kama Park
The Ruins of Nakahama Elementary School
Kadonowaki Elementary School
(Okawa Elementary School*)
(Minamisanriku Tokura Middle School*)
Fukushima Prefecture
Great East Japan Earthquake and Nuclear Disaster Memorial Museum
Communitan Fukushima
Traditional Requiem Memorial Hall
Earthquake remains Ukedo Elementary School
Tomioka Archive Museum
Iwaki 3.11 Memorial and Revitalization Museum

Prefectural and municipal disaster museums (Gerster and Maly forthcoming)

- Yellow: School Disaster Memorials
- (*) Does not (yet) contain an exhibition

Disaster museums in Japan

After 3.11: Stories of evacuation to schools included success and tragedy



<https://mnj.gov-online.go.jp/kamaishi.html>

“Miracle” of Kamaishi City, in Unosumai

<http://wedge.ismedia.jp/articles/-/1334?page=2>



Disaster museums in Japan

After 3.11: Stories of evacuation to schools included success and tragedy

Arahama Elementary School, in Sendai City, Miyagi Prefecture

- 700 meters from the coast
- 2200 people used to live in Arahama district
- 320 people were saved on the school grounds
- Opened as a memorial in April 2017 (Operated by Sendai City)
- Permanent and temporary exhibitions including videos and emergency goods



<https://english.kyodonews.net/news/2017/10/348878c984d1-gallery-the-school-that-saved-320-from-japans-march-2011-tsunami.html>



<http://www.sendai-c.ed.jp/~gakkoumemorial/arahama/earthquake/>

Disaster museums in Japan

After 3.11: Stories of evacuation to schools included success and tragedy

Arahama Elementary School
In Sendai City, Miyagi Prefecture

Combination of what life used to be before the GEJE and disaster risk education.

- Theme: 27 hours until the rescue of all evacuees
- Pictures and videos show what the place looked like in the immediate aftermath of the tsunami
- Focus on good evacuation practices



Photos: Julia Gerster

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Disaster museums in Japan

After 3.11: Stories of evacuation to schools included success and tragedy

Nakahama Elementary
(Yamamoto Town)

- Built in 1989
- Disaster prevention measures:
Ground was raised by 2 meters, evacuation staircase outside of the school
- 400 meters from the coast
- 90 people were saved on the rooftop

- Debris and the aftermath of the disaster preserved as much as possible
- Videos and texts provide information about the area and the day of the disaster
- Answers on correct behavior are not provided right away
- Visitors are confronted with questions
- Risk education through emotions: By visiting the ruins, the visitors should imagine what the evacuees went through, what could happen to themselves, and how they can prepare themselves.



Photos: Julia Gerster

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Disaster museums in Japan

After 3.11: Stories of evacuation to schools included success and tragedy



<https://www.asahi.com/topics/word/%E5%A4%A7%E5%B7%9D%E5%B0%8F%E5%AD%A6%E6%A0%A1.html>



<https://www.japantimes.co.jp/news/2016/03/27/national/social-issues/ishinomaki-turn-okawa-elementary-ruins-311-monument/#.W6iJJK1tsY>

- 4 kms away from the coast but close to the Kitakami River
- Tsunami came up the river and flooded the school
- 74 children and 10 staff died
- Although the school is next to a hill, the group evacuated too late and in the direction of the incoming tsunami. The disaster manual did not list a designated evacuation place in case of a tsunami.
- 2016 decision to preserve the school building (Ishinomaki City) but community split

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Disaster museums in Japan

After 3.11: Stories of evacuation to schools included success and tragedy

- Okawa Elementary is one of the very few preserved disaster ruins where people died (or death is closely attached to the site)
- Ishinomaki City: Preservation of 2 school buildings (also Kadonowaki)
- Questions of responsibility
- The site heavily depends on guides to understand the history attached to it (Okawa Densho no Kai, bereaved parents)
- “Learning from mistakes”



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Disaster museums in Japan

After 3.11: Stories of evacuation to schools included success and tragedy

- Preserved school buildings have an important role as memorials, as well as places for teaching and learning about DRR
- Already owned by the municipality (public building)
- Have a strong connection to the community, and community history, culture.
- Often function as the site of disaster evacuation

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