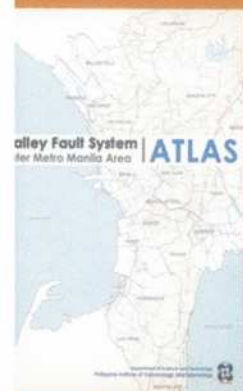




PHIVOLCS

2015 ANNUAL REPORT



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Message from the Director

It is with pride to present the accomplishments of Philippine Institute of Volcanology and Seismology (PHIVOLCS) for the year 2015.

PHIVOLCS continued with its effort to build up its national earthquake and tsunami monitoring network with a total of 36 manned and 46 satellite-linked seismic stations by end of 2015.

Most of the monitored active volcanoes remained quiet except for discrete phreatic eruptions in Bulusan Volcano between May-July and Kanlaon Volcano from November to December 2015. The well-emplaced monitoring system around these two volcanoes ensured appropriate guidance and proper responses from the Local Government Units (LGUs) and communities in the vicinity.

The 5-year JICA SATREPS Project Enhancement of Earthquake and Volcano Monitoring and Effective Utilization of Disaster Mitigation Information in the Philippines came to a close in January 2015. With it brought enhanced monitoring networks and human resource capacities for PHIVOLCS. As a showcase of accomplishments, 18 technical papers authored and co-authored by PHIVOLCS scientists with its counterparts from the National Research Institute for Earth Science and Disaster Prevention (NIED) and other research institutions from Japan were published in a special issue of the Journal of Disaster Research (Volume 10, No. 1, February 2015). By end of 2015, nine (9) broadband strong motion seismometers, 30 strong motion seismometers and 13 sea-level monitoring stations were installed. This is part of another JICA-assisted Project for the Improvement of Equipment for Disaster Risk Management Enhancement of Volcano, Earthquake and Tsunami Warning System for Disaster Reduction in the Philippines.

It is always true that there are endings that are beginnings. Although two (2) major externally-funded projects by JICA ended in 2015, a new collaboration between PHIVOLCS and the Université Libre de Bruxelles (ULB) in Belgium was launched in March 2015. This 5-year program entitled Reducing the impact of volcanic disaster in the Philippines: towards improved capacities of human communities to cope with volcanic hazards, is focused on Taal Volcano.

True to our commitment for continued institutional development which we started in 2012 with the Strategic Plan 2012-2016, PHIVOLCS embarked on Competency Modeling, Profiling and Assessment which is another Philippines-Australia Human Resource and Organizational Development Facility (PAHRODF) assistance.

Goal / Objectives

GOAL

The principal goal of PHIVOLCS is to formulate up-to-date and comprehensive disaster preparedness and loss reduction action plans for volcanic eruption, earthquake occurrences and related geotectonic processes/phenomena (e.g. faulting, landslides and tsunami) which imprint significant impacts on man and his environment. A corollary goal is to exploit the positive aspects of these processes for the upliftment of the people's quality of life. In line with its role in the promotion of science and technology in the country, PHIVOLCS will furthermore undertake activities geared towards making people aware of volcanoes and volcanology, earthquakes and seismology, and understand why, where and how natural disasters of volcanic and seismic origins occur in the Philippines.

OBJECTIVES

The overall objectives of the Institute are:

To develop and maintain effective networks of volcanological, seismological and geophysical stations and facilities for monitoring, R&D purposes and disaster mitigation;

To develop the capability to repair, upgrade and fabricate instruments used in volcano and seismic monitoring and R&D activities;

To conduct research to increase the level of understanding or knowledge about volcanoes, volcanic eruptions and terranes, earthquake zones and mechanism, faulting, along with other related geotectonic phenomena;

To adapt and develop technologies for volcanic eruption and earthquake prediction, volcano and seismic monitoring and disaster mitigation;

To conduct R&D on the impact of volcanic eruption, earthquake and other related geotectonic phenomena on the physical and socio-economic environment and recommend appropriate measures for the mitigation of impacts and rehabilitation of affected areas;

To implement an aggressive S&T information processing and dissemination program to promote public awareness on the significance of volcanic activity, earthquakes and related geotectonic processes and their threats and possible benefits to man; and

To identify, evaluate and characterize volcanic materials and energy products and generate or adapt technologies for their utilization.

Highlights

For the year 2015, PHIVOLCS once again proved its commitment to deliver quality service to the public with its 24-hour earthquake and volcano monitoring. PHIVOLCS' manned and unmanned stations recorded 10,932 earthquakes of which 2,466 events were located with complete earthquake parameters.

Most of the monitored volcanoes remained quiet until May when Bulusan Volcano displayed phreatic eruptions and showed unrest until July. Just when we thought that the volcanoes would remain quiet for the rest of the year. Kanlaon Volcano had a series of small phreatic eruptions from November until December 2015. Proper responses were observed from the communities in the vicinity and these can be attributed to the well-emplaced monitoring system as well as well-established positive rapport of PHIVOLCS with these communities.

In addition to the daily monitoring operations, PHIVOLCS implemented both externally- and internally-funded programs all of which are part of the Strategic Plans of the Institute. These programs include development and operations of the National Earthquake Monitoring and Information System, National Tsunami Monitoring and Early Warning System and the National Volcano Monitoring and Warning System. These are complemented by programs on Earthquake Hazards and Risk Assessment and Earthquake Generation Potential of Active Faults and Trenches, Volcanic Hazard and Risk Assessment and Eruption and Magmatic History of Volcanic Systems and Volcano, Earthquake and Tsunami Disaster Risk Reduction.

The launching of the Valley Fault Atlas, although not a new information once again triggered a heightened public interest on the fault that could affect Greater Manila Area. The year witnessed the culmination of the 5-year JICA SATREPS Project Enhancement of Earthquake and Volcano Monitoring and Effective Utilization of Disaster Mitigation Information in the Philippines and the JICA-assisted Project for the Improvement of Equipment for Disaster Risk Management Enhancement of Volcano, Earthquake and Tsunami Warning System for disaster Reduction in the Philippines. The Institute launched a new collaboration between PHIVOLCS and the ULB in Belgium in March 2015. This 5-year program Reducing the impact of volcanic disaster in the Philippines: towards improved capacities of human communities to cope with volcanic hazards looks at enhancing the monitoring system for Taal Caldera and engaging selected pilot communities for community-based disaster risk reduction.

As a continuation of our commitment for institutional development which we started in 2012 with the Strategic Plan 2012-2016, PHIVOLCS started its Competency Modeling, Profiling and Assessment which is another Philippines-Australia Human Resource and Organisational Development Facility (PAHRODF) assistance.

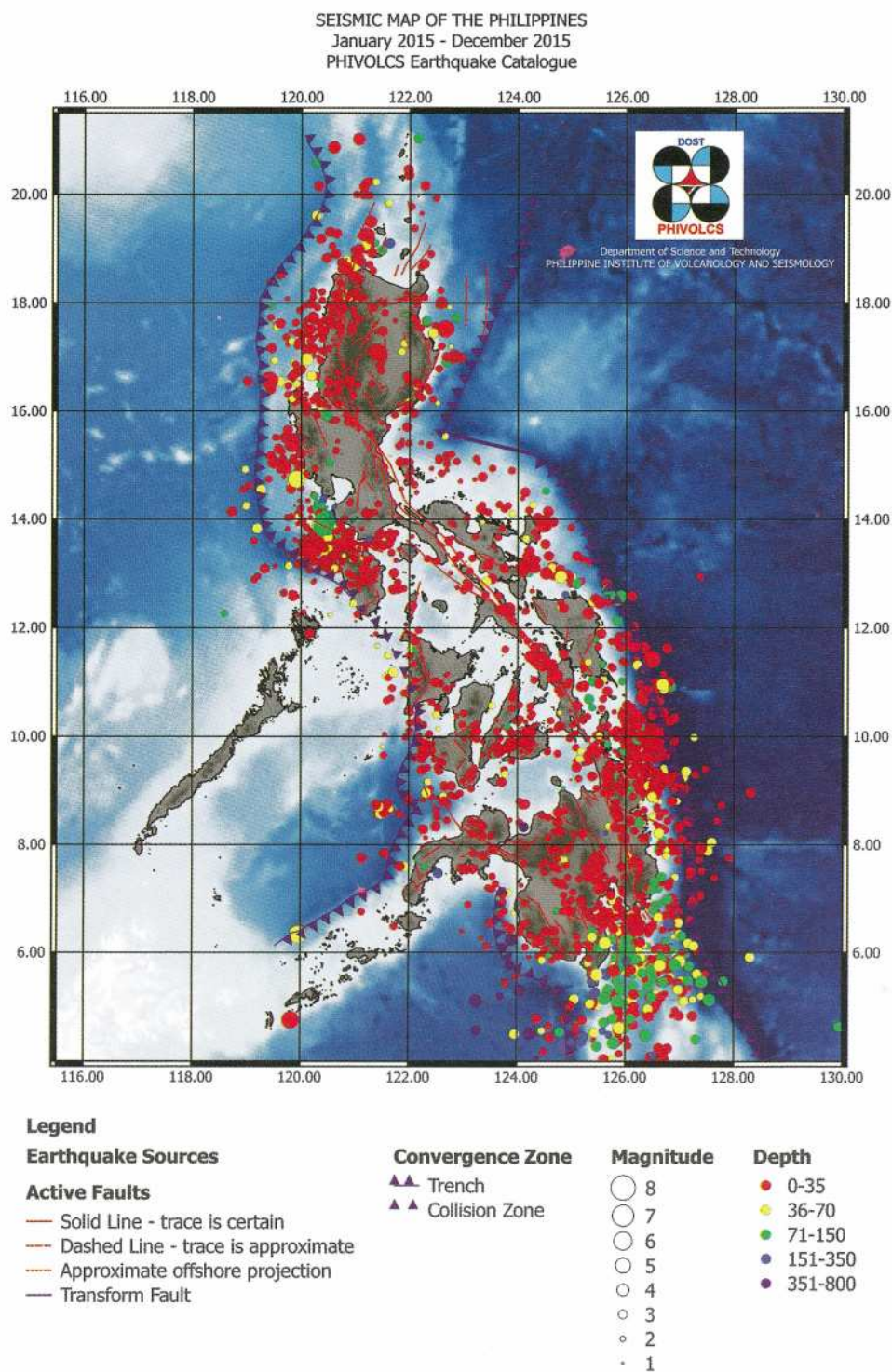
National Earthquake Monitoring and Information

Objectives

- To provide accurate and timely information on significant earthquakes and tsunami events that may significantly impact the Philippines
- To ensure the accessibility and integrity of earthquake data

Accomplishments

- By end of 2015, operated and maintained a national network of 36 manned and 46 satellite-linked seismic stations that has contributed for rapid earthquake event information and better documentation of earthquake in and around the Philippines.
- Enhanced capabilities for earthquake magnitude determination with operational broadband network comprised of 18 stations.
- From 55 sites in 2014, deployed additional intensity meters in 37 sites, making a total of 92 sites with installed intensity meters in pilot stage, which is providing instrumental seismic intensity for each site.



2015 Seismicity map of the Philippines

- [illegible]

2015 Seismic monitoring network of the Philippines

National Tsunami Monitoring and Early Warning

Objectives

- To operate and maintain an effective tsunami monitoring and communication system
- To monitor all tsunami events that may affect the Philippines for timely issuance of tsunami advisories and warnings
- To develop a tsunami database with expected wavelengths and arrival times at certain forecast points; and
- To release tsunami information in time based on Standard Operating Procedures

Accomplishments

- Installed thirteen (13) real-time sea-level monitoring stations by end of 2015 (Occ. Mindoro, Batangas, Cavite City, La union, Cagayan, Aurora, Catanduanes, Eastern Samar, Surigao del Norte, Surigao del Sur, Davao Oriental, Sarangani, and Negros Oriental). This is part of the JICA Project for Improvement of Equipment for Disaster Risk Management Enhancement of Volcano, Earthquake and Tsunami Warning System for Disaster Reduction in the Philippines. This is expected to complement the 10 Tsunami Early Warning System (TeWS) detection sites completed in 2014 as part of the DOST-GIA TeWS Project and the existing real-time sea level monitoring stations in Panay Gulf, Manila Bay, Sarangani Bay and Bislig Bay.
- Operated and maintained the TeWS visualization tool to monitor locally-generated tsunami occurrences
- PHIVOLCS is equipped with Tidetool which monitors tide gages installed all around the Pacific Ocean to determine information on arrival times and wave heights of tsunamis generated around the Pacific Ocean.



Location of thirteen (13) real-time sea-level monitoring stations (yellow), (red square to be intall in 2016)

National Volcano Monitoring and Warning

Objectives

- Efficient and effective operation of Main Office and Volcano Observatory monitoring networks, systems, facilities, protocols, and support functions for optimum delivery of volcano monitoring services and information to stakeholders
- Generation of high-quality volcano-monitoring data and knowledge base in support of understanding volcanic processes, long- to short-term prediction and analysis of volcanic unrest.
- Development of state-of-the-art networks, instrumentation, processes, and data systems for supporting high-fidelity volcano monitoring
- Enhanced internal, local, and international collaborations for technical and instrumental capacitation in state-of-the art volcano monitoring.
- Enhanced internal, local, and international partnerships for DRR capacity-building of communities at risk to volcanic eruptions.

Accomplishments

- 99.99% of volcano bulletins including updates, advisories, and raising of alert levels for Bulusan and Kanlaon Volcanoes were issued according to Standard Operating Procedures (SOP).
- About 50% Eruption Notification (EN) and Volcano Observatory Notice to Aviation (VONA) were issued within 10-20 minutes of preliminary report from Volcano Observatory, but all were issued within a 1 hour period.
- An average of 87% uptime in the 24-hour operation of Volcano Observatories and remote stations while an average of 81% uptime in continuous Global Positioning System (GPS) networks. The high uptimes are

a result of the capacitation and increased process ownership of Volcano Observatory staffs. A significant percentage on the causes of the downtime was due to severe weather events that are beyond human control.

- Taal, Bulusan, Kanlaon and Hibok-Hibok Observatories have completed planned renovations, while civil works for a new three-station broadband seismic network on Hibok-Hibok Volcano were finished.
- Bulusan and Kanlaon Volcano Observatories (BVO and KVO) each successfully monitored periods of discrete phreatic eruptions in May-July and November-December, respectively, while their monitoring networks and systems were performing well.
- Increased responsiveness in both VO and MO personnel for actual VONA issuances due to the frequent feedback on the performance of unannounced VONA drills of the Tokyo-based Volcanic Ash Advisory Center (VAAC).
- Successful participation in the first volcanic exercise directive, VOLPHIN2015, organized by members of ICAO Asia and the Pacific.
- A six-station continuous GPS array on Kanlaon Volcano was operationalized, with 5 of the stations integrated to the state-of-the-art RTNet successor Trimble 4D server for real-time data visualization.
- Near-real time processing of tilt data for all stations of Mayon, Taal and Bulusan using coded scripts in VALVE resulting to more efficient generation of time series plots.
- GPS Data processing using Globk/GAMIT and D-Models is operationalized in day-to-day monitoring activities. Application of the software provided better-constrained information on the pressure source of the 2014 unrest of Mayon Volcano.

Technical Advisory Services for Geologic and Geophysical Phenomena

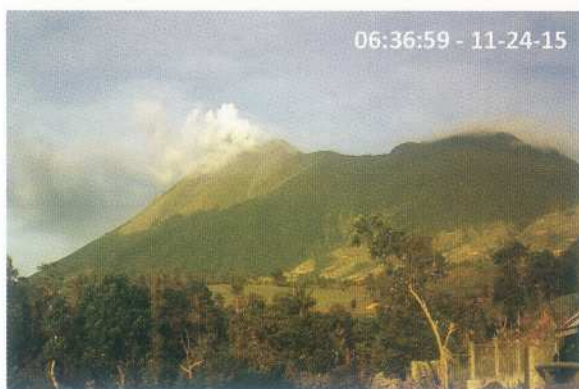
- Installation and operationalization of open-source software for near-real time monitoring of volcano-seismic activities. The software aided in the providing critical information that served as basis for the raising of alert levels during the Bulusan and Kanlaon eruption episodes. With the aid of these softwares, the KVO and MO were able to determine the precursory signals to the November to December unrests of Kanlaon Volcano.
- Dramatic reduction in data processing time and total elimination of human errors in processing resulted from the successful run of the first automation of seismic data capture in Linux platform.
- Increases in ambient CO₂ in monitored springs in Bulusan and acidity and degassing in monitored springs in Kanlaon were detected by geochemical monitoring in the quarter before phreatic eruptions began in 2015. These anomalies will be monitored as possible geochemical indicators that could precede future eruptions.
- Additional two sites for near real-time physio-chemical (H₂O level, CO₂, pH, temperature) were successfully installed and put into operation in Taal Volcano providing the much-needed additional sampling sites for geochemical monitoring.
- The first functional GSM-based real-time temperature monitoring system was installed in Mateo Hot Spring in San Benon, Sorsogon that will monitor changes in heat output from potential magma intrusion beneath Bulusan Volcano.
- Seismic, tilt, cGPS, SO₂, soil CO₂, and hydrometeorological data in Mayon Volcano are being received in real-time by Mayon Volcano Observatory and can be viewed online, significantly minimizing fieldwork deployment of staff for on-site download. Data downloading, backfill and processing have been automated using open-source programming languages, making data gathering and processing more efficient at no additional cost to PHIVOLCS.
- WOVOdat-compliant PHIVOLCS-LAVA (Local Active Volcanoes Archive) has been populated with legacy volcano monitoring data covering 1997 to 2001 and 2015. These include records of eruption, deformation, magnetic fields gas, hydrologic, seismic, and thermal data that are now accessible online. New scripts have been operationalized to automate data upload from the Observatories to the PHIVOLCS-LAVA server, such as those for Phase Data, Plotted Earthquakes, Taal Main Crater Lake parameters and others.

Technical Advisory Services for Geologic and Geophysical Phenomena

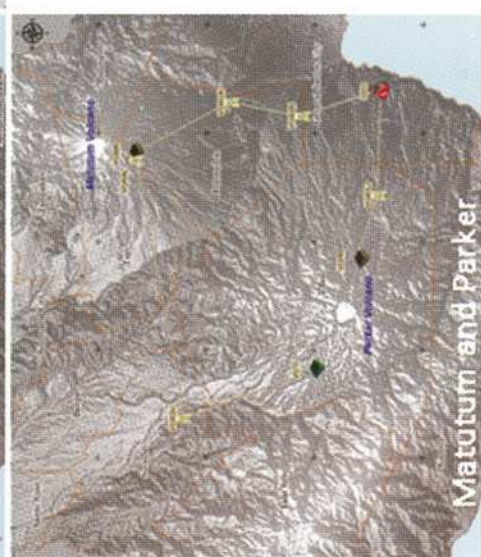
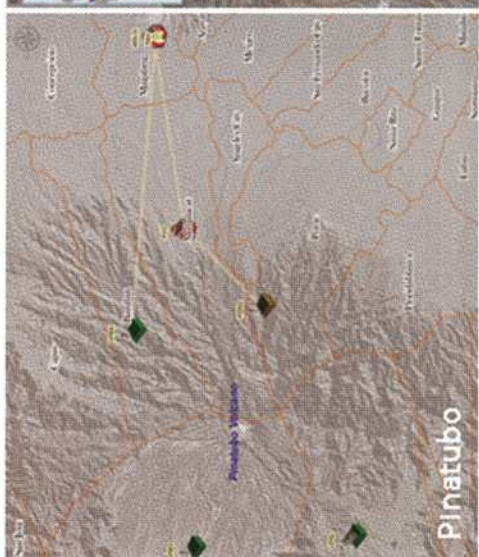
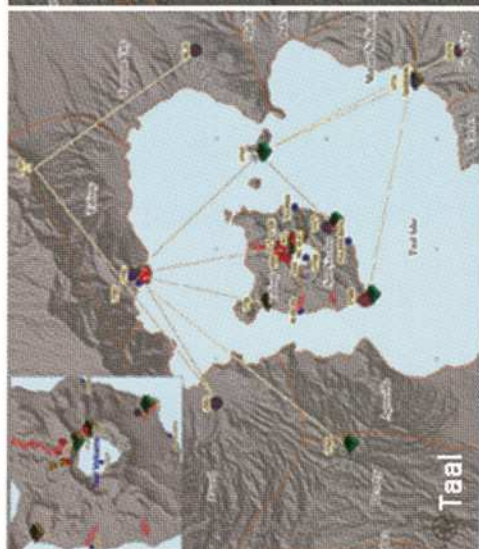
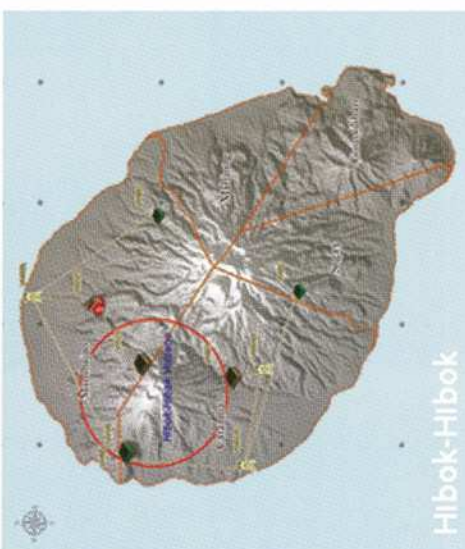
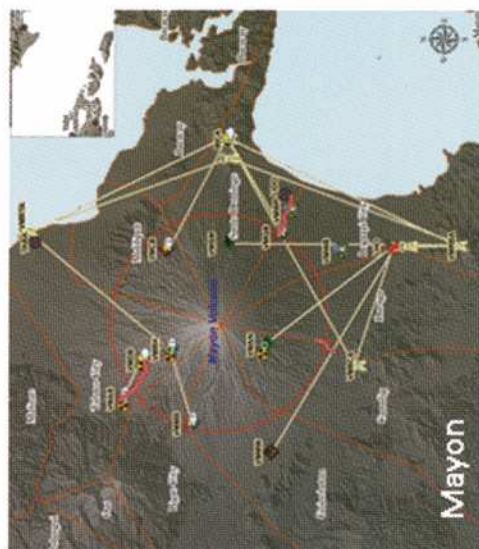
Bulusan Volcano Eruption 16 June 2015



Kanlaon Volcano Eruption 24 November 2015



Technical Advisory Services for Geologic and Geophysical Phenomena



PHIVOLCS volcano seismic networks with integrated state-of-the-art systems and technologies

Technical Advisory Services for Geologic and Geophysical Phenomena

Geochemical Monitoring



Instrumentation



Geophysics



Ground Deformation



Technical Advisory Services for Geologic and Geophysical Phenomena

Quick Response Team (Bulusan Volcano)



Aerial survey



Ash collection



Water sampling

Earthquake Hazards and Risk Assessment and Earthquake Generation Potential of Active Faults and Trenches

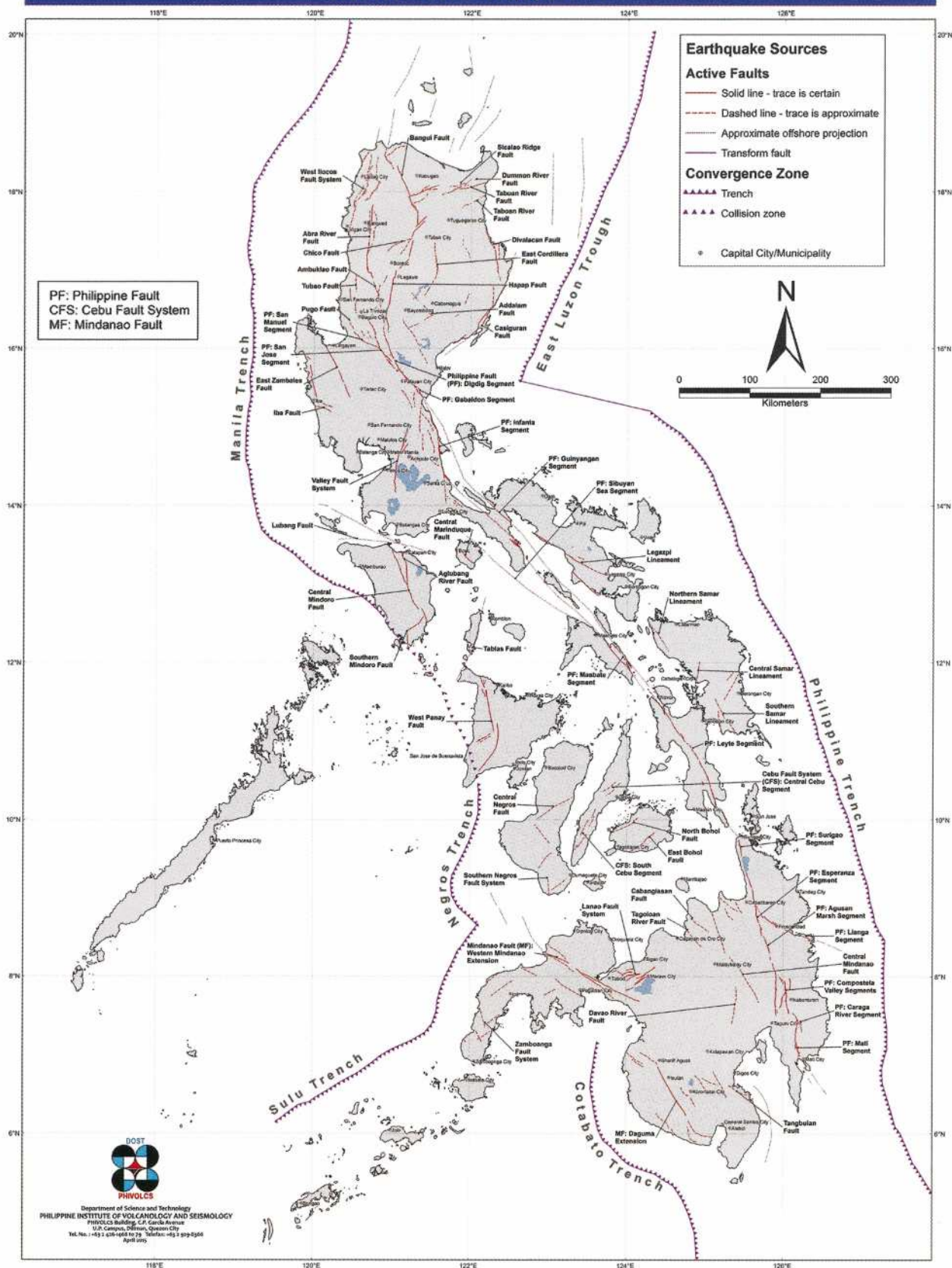
Objectives

- To evaluate earthquake hazards and risks in the Philippines;
- To evaluate earthquake-generation potential of active faults and trenches;
- To establish monitoring systems for local deformation along active faults and trenches; and
- To develop ground failure hazards monitoring and warning system.

Accomplishments

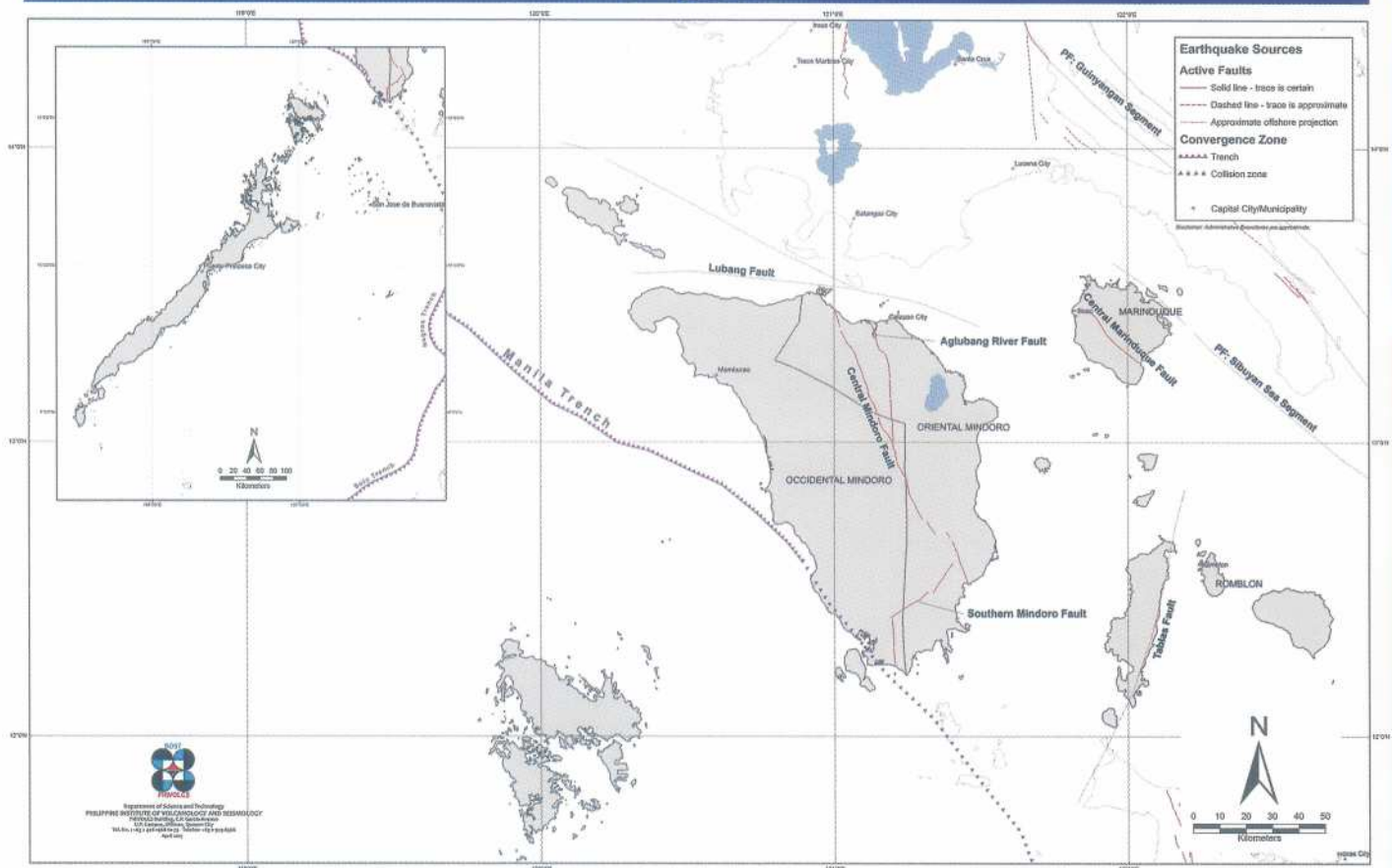
- Revised map of Distribution of Active Faults and Trenches in the Philippines on a scale covering each administrative region and the whole Philippines were released and made available to the public by June 2015.
- Mapping and assessment of earthquake-related hazard for Cebu and Bohol provinces are ongoing, while mapping activities commenced for Davao City. Finalization of 1:50,000 ground rupture, ground shaking, liquefaction and earthquake-induced landslide hazard maps of Cebu and Bohol provinces are to be completed in 2016.
- Preliminary interpretations of geomorphic features related to active faults, coastal marine terraces, liquefaction and landslide in Luzon and Visayas using 5x5 meter resolution Interferometric Synthetic Aperture Radar (IfSAR) images were initiated. The results of the interpretation will be used to update earthquake hazard information especially on provinces not covered by previous multi-hazard mapping initiatives.
- Conducted acoustic reflection survey using 3.5 kHz marine echo sounding equipment in Lamon Bay–Calauag area to delineate the offshore extension of the Philippine Fault: Guinayangan Segment. Preliminary results showed deformation on layers of Holocene sediment on the seafloor transected by the Guinayangan Segment.
- Conducted walk-the-fault activities in response to requests related to the release of the Valley Fault System (VFS) Atlas to a total of 30 transected areas, which includes school, universities, college, subdivisions, barangays, cities/municipalities and other institutions. Additionally, site-specific ground rupture hazard assessments were conducted in 15 schools, universities and colleges (see page 15).
- Accommodated fault-related queries and site specific investigations and requests for lectures, which came in as offshoots of the publication of the VFS Atlas.
- Conducted training related to earthquakes and earthquake hazards, including GGRDD operations to nine EGGRD staff from May 11 to 15.
- Configured three continuous GPS sites in Northern Luzon (Basco, Itbayat, and Calayan) with telemetry for the downloading of data.
- Conducted campaign-type measurements in 131 benchmarks all over the country for PHIVOLCS' GPS geodesy activities. Six of which were newly established for that year on Cebu, Bohol, and Negros. To date, more than 194 GPS campaign-type benchmarks have been established nationwide.
- Established eleven new continuous GPS installations, seven of which were installed in Masbate as part of the on-going collaboration with the National Cheng Kung University (NCKU) of Taiwan to study the Philippine Fault. Four were recently installed across the West Valley Fault. Taken altogether with existing permanent sites, these add up to a total of at least 80 continuous GPS stations across the country.

Distribution of Active Faults and Trenches in the Philippines



Revised map of distribution of active faults and trenches in the Philippines (2015)

Distribution of Active Faults and Trenches in Region 4B



Example of revised regional map of distribution of active faults and trenches in Region 4B



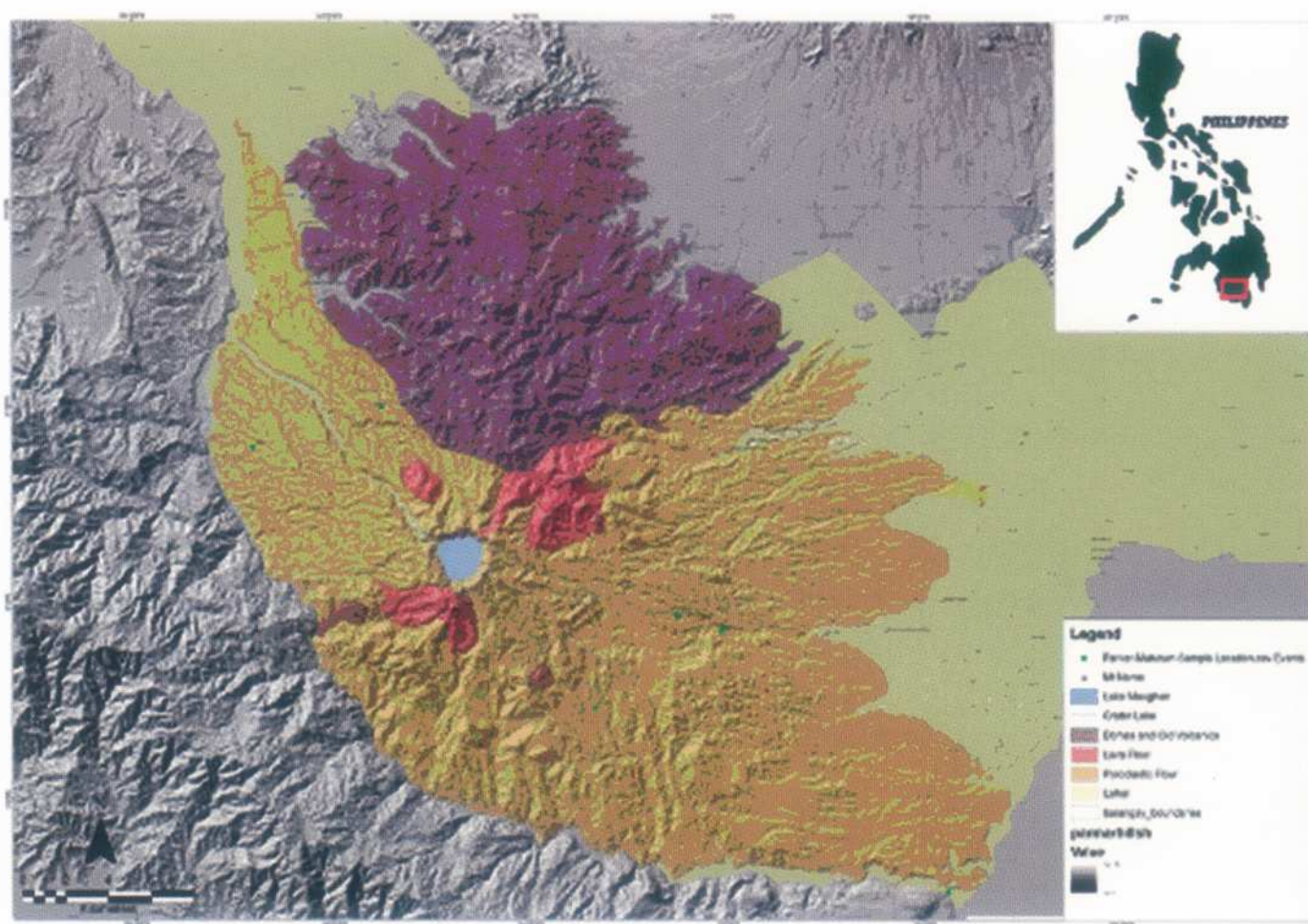
Volcanic Hazard and Risk Assessment and Eruption and Magmatic History of Volcanic Systems

Objectives

- To provide volcanic hazards and risks assessment of active volcanoes in the Philippines;
- To develop a GIS-based assessment system to aid in evaluation of volcanic hazards and risks;
- To evaluate the eruption potential and magmatic history of large volcanic systems;
- To generate a rating scheme of eruption potential among Philippine volcanoes (PHIVOLCS Volcano Eruption Potential rating, PVEP).

Accomplishments

- Generated and written for publication entitled *"A synthesis and review of historical eruptions of Taal Volcano, Southern Luzon, Philippines"*, a comprehensive review and analysis of the eruption history of Taal Volcano.
- Results of tephra modeling written for publication entitled *"Simulation of the 1754 eruption of Taal Volcano, Philippines using Tephra2"*.
- Produced an improved volcano-geologic map using IfSAR and field verified the extent of the deposits of Matutum and Parker volcanoes.
- Generated new stratigraphic logs of the deposits of Matutum and Parker volcanoes.
- Obtained 9 new radiocarbon dates using Accelerator Mass Spectrometry (AMS) measurements for Matutum and Parker volcanoes.
- Generated executive summary reports for the assessments/evaluation of the potential breaching and avulsion points for lahar of Sto. Tomas-Marella, Bucao, and Pasig-Potrero river systems in Pinatubo Volcano and Masarawag and Maninila rivers in Mayon Volcano.
- Produced a geochemical database of the analysis of waters from thermal springs and wells around Kanlaon and Bulusan volcanoes as part of the research in identifying geochemical parameter(s) in comparing hydrothermal activity vis-à-vis magmatic activity on Philippine volcanoes.
- Completed borehole drilling activities, and produced borehole stratigraphic log information including lithologic description of core samples and petrologic description of tephra of Paitan Lake in Nueva Ecija.
- Completed core sediments sampling for establishment of widespread tephra network for various applications in the Philippine volcanoes taken from Lakes Sampaloc, Bunot, Mohicap, and Palakpakin.



Improved and field-verified volcano-geologic map of Parker Volcano, South Cotabato, Philippines



Outcrops of Matutum Volcano as seen in Sitio Ulo Landan, Polomolok, South Cotabato

Technical Advisory Services for Geologic and Geophysical Phenomena

Volcanic Hazards and Risk Assessment



Inundation model using LaharZ



Captured Google Earth image of Bucao River - dike system draining Pinatubo Volcano, Zambales



Possible avulsion site along dike where free board is almost zero

Tephrastratigraphy of Philippine Volcanoes



Collaborative project with the AIG Collaborative Research Institute for International Study on Eruptive History and Informatics, Fukuoka University and Research and Education Center for Natural Hazards, Kagoshima University aiming to establish tephra network in the Philippines through the integration of volcanic stratigraphy and radiometric dating using ^{14}C and thermoluminescence methods.

Core sample slice with a suspected tephra layer

Volcano, Earthquake and Tsunami Disaster Risk Reduction

Objective

- To develop appropriate and relevant volcano, earthquake and tsunami information campaigns for the promotion of awareness and enhancement of capacities of stakeholders in disaster preparedness and risk reduction.

Accomplishments

- Developed a total of 24 new appropriate information materials in various forms and put up exhibit package in 12 sites for specific stakeholders.
- Conducted trainings for teachers in Bulacan, Surigao del Sur, and Sagada with a total of 281 participants (see page 29).
- Conducted trainings for local chief executives and barangay officials in Surigao del Sur, Sagada, Quezon City, with a total participants of 434.
- Conducted seminar on Disaster Risk Reduction Training for Philippine Science High School System teachers and staff (40 participants), and in-house seminars for PHIVOLCS staff capacity enhancement namely Writeshop for the update and revision of the PHIVOLCS Tsunami SOP, Long-period Earthquake ground Motion critical to the Design of medium to high rise structures in Metro Manila (49 participants) and the ASC pre-assembly echo training (20 participants).
- Conducted 13 REDAS training sessions with a total of 734 participants.
- Held InfoSentro or the PHIVOLCS forum for the members of the media on 5 occasions: VFS Booklet Launching (18 May), Surigao Del Sur Media Briefing (15 September) (see page 26, QCSCF Media Briefing (14 October), JICA Hand-over ceremony (15 October) and Handa, Awit, Lindol (13 July).
- Launched the Valley Fault System (VFS) Booklet 18 May 2015. As the material was downloaded from PHIVOLCS website, total downloads recorded immediately after the formal launch on 18 May was 19,906, and peaked during the second day 19 May at 29,927 and slowly decreased in the following weeks. By the end of December 2015, total downloads recorded was 99, 897. In addition, a total of 1,506 DVDs of the VFS Booklet was also distributed as well as 146 hard/printed copy by PHIVOLCS. Hard copies were mostly given to the Metro Manila LGUs, Provincial LGUs and partner NGAs (see page 26).
- Held the formal launching of Taal-PHIVOLCS-ULB Project March 2015 with a total of 64 participants mostly barangay officials from the municipalities of Talisay (Leynes and Caloocan), Laurel (Busoboso and Gulod), Agoncillo (Banyaga and Bilibinwang) and San Nicolas (Poblacion and Abelo).
- Conducted Walk-the-Fault activities in response to requests related to the release of the Valley Fault System Atlas to a total of 30 transected areas, which includes school, universities, college, subdivisions, barangays, cities/municipalities and other institutions. In addition, site-specific ground rupture hazard assessments were conducted in 15 schools, universities and colleges.
- Conducted the Final Workshop and JCC Meeting for the JICA SATREPS Project and the Hand-over Ceremony Project for the Improvement of Equipment for Disaster Risk Management
- Attended to 88 requests for in-house educational tours (10,010 number of visitors) and 454 requests for outside lectures.
- Distributed 119,228 PHIVOLCS information materials.
- Distributed 1,932 DVDs containing available PHIVOLCS digital hazard maps and information materials during seminars.

Disaster Risk Reduction Services

Information Materials Developed

Type	Title	Date produced	Number of copies	Funding source
Handbook	VFS Atlas	May	1,000	READY-GMMA
Comics	The Dangerous Road (Story of Imelda Suzuki)	July	2,000	JICA
Comics	My Last Sayonara (Story of Lorna Kikuta)	July	2,000	JICA
Comics	A Perilous Time (Story of Marivel Gunji)	July	2,000	JICA
Comics	Renewed Hope (Haydee Kaiyama)	July	2,000	JICA
Pocketsize flyer	PHIVOLCS Earthquake Intensity Scale (Filipino version)	September	30,000	GAA
Pocketsize flyer	Gabay Para sa Paghahanda sa Lindol	September	30,000	GAA
Report	2014 PHIVOLCS Annual Report	October	522	GAA
Report	06 February 2012 Ms 6.9 Negros Oriental Earthquake	November	1,000	GAA

Information Materials Reprinted

Type	Title	Date produced	Number of copies	Funding source
Flyer	Developing a Tsunami Prepared Community	May	10,000	JICA
Flyer	Tsunami (English and Filipino version)	July	20,000	JICA
Pocketsize flyer	PHIVOLCS Earthquake Intensity Scale	July	50,000	JICA
Pocketsize flyer	Earthquake Preparedness	July	50,000	JICA
Flyer	REDAS	July	2,000	GAA
Flyer	How to Conduct an Earthquake Drill in School	July	20,000	GAA
Flyer	Earthquake Safety in School	July	10,000	GAA
Poster	How to Conduct Tsunami Drill	August	20,000	JICA
Flyer	How Safe is Your House?	August	10,000	JICA
Flyer	Volcanoes and Volcanic Hazards	August	20,000	GAA
Poster	PHIVOLCS Earthquake Intensity Scale (English and Filipino version)	October	40,000	JICA
Flyer	Development of the National Earthquake Monitoring System	November	100	GAA

Information Materials Disseminated

Type	No. of copies distributed
Print materials	119,228
CD video packages	12
CD video packages distributed during teachers' training	129
CD/DVD during seminars	285
CD of VFS distributed to the stakeholders (walk-in, presscon, etc.)	1,506
Total number of info materials disseminated	119,654

Disaster Risk Reduction (DRR) Activities

A. Information, Education and Communication (IEC) Campaign for LGUs	Date conducted	Number of participants	% respondents that rated the activity as Satisfactory or better
1. Reducing the Impact of Volcanic Disaster in the Philippines: Towards Improved Capacities of Human Communities to Cope with Volcanic Hazard – Project Launching	11 March	64	100
2. Trainers Training in the Establishment of Community-Based Early Warning System for Tsunami in Cavite City Under GMMA READY Project	7 April	96	100
3. Trainers Training in the Establishment of Community-Based Early Warning System for Tsunami in Noveleta, Cavite Under GMMA READY Project	8 April	127	100
4. Information Campaign for the Municipality of Sagada: Earthquake, Earthquake Hazards and Earthquake Awareness and Preparedness	15 May	80	100
5. Barangay IEC for Tsunami in Barangay 29M Laolao, Cavite City	23 May	250	100
6. Barangay IEC for Tsunami in Barangay San Rafael III, Noveleta, Cavite	24 May	80	100
7. Seminar-Workshop for Local Government Units and Barangay Officials: Earthquake and Tsunami Awareness and Preparedness for Communities of Surigao del Sur	14, 16, 17 September	285	91
8. Workshop on Integrating Hazard Maps into the Disaster Risk Reduction and Management Plan of Selected Barangays in Quezon City	14 October	69	100

B. Teachers' Training	Date conducted	Number of participants	% respondents that rated the activity as Satisfactory or better
1. Teachers' Training on Communicating Earthquake and Tsunami Hazards for DepEd Province of Bulacan, Malolos, Meycauayan and San Jose Del Monte	26 May	48	100
2. Teachers' Training on Communicating Earthquake and Tsunami Hazards for DepEd Province of Surigao Del Sur	18 September	56	90
3. Information Campaign for St. Mary's School of Sagada: Earthquake, Earthquake Hazards and Earthquake Awareness and Preparedness	13 May	177	100

C. Rapid Earthquake Damage Assessment System (REDAS) Training	Date conducted	Number of participants	% respondents that rated the activity as Satisfactory or better
1. Northwest Samar State University (NWSSU)	Jan. 25 -30	67	99
2. Iriga City	March 8-13	70	95
3. Samar	April 15,20-24	54	100
4. Ayala Group of Corporation	May 3-9	59	100
5. Ifugao	May 24-31	45	98
6. Batanes	June 14-21	50	97
7. Catanduanes	June 28 to July 5	23	100
8. Benguet	August 3-8	82	99
9. Ilocos Sur	August 30-Sept 5	47	98
10. Quezon	Sept 21-26	76	98
11. Isabela	Oct 12-16	42	100
12. Camarines Norte	Oct 24-29	62	98
13. Iloilo	Nov 24-28	14	93
14. Office of Civil Defense (OCD)	Dec 7-12	43	100

Disaster Risk Reduction (DRR) Activities

D. Other DRR Activities	Date conducted	Number of participants	% respondents that rated the activity as Satisfactory or better
1. Writeshop for the Update and Revision of the PHIVOLCS Tsunami SOP	29-30 January	40	100
2. Orientation and Knowledge Sharing for Partner Agencies: Training on Disaster Risk Reduction - The Role of DOST-Philippine Science High School Campuses	28-30 April	25	100
3. Long-Period Earthquake Ground Motion Critical to the Design of Medium-to-High Rise Structures in Metro Manila Stakeholders' Meeting	16-17 April	49	100
4. Orientation and Knowledge Sharing for PHIVOLCS Staff: Contribution of Seismology to Earthquake Risk Mitigation	10-12 November	20	100
5. Final Workshop and JCC Meeting: Enhancement of Earthquake and Volcano Monitoring and Effective Utilization of Disaster Mitigation Information in the Philippines	8 January	78	97

E. Earthquake Drills and Tsunami Drills	Date conducted	Number of participants
1. 1st Quarter Nationwide Simultaneous Earthquake Drill (NSED) – Marikina City	27 March	~2,000
2. Artesyn Embedded Technologies PEZA Complex, Rosario, Cavite	10 April	51
3. St. Lukes Medical Center, BGC, Taguig City	25 May	~300
4. Bangko Sentral ng Pilipinas, East Avenue, Quezon City	01 June	~800
5. 2nd and 3rd Quarter Nationwide Simultaneous Earthquake Drill (NSED) – BGC, Taguig City	23 July	~2,500
6. 2nd and 3rd Quarter Nationwide Simultaneous Earthquake Drill (NSED) – University of Immaculate Conception, Davao City	23 July	2,428
7. PHIVOLCS Earthquake Drill, Diliman, Quezon City	30 July	~80
8. Metro Manila Shake Drill – Veterans Memorial Medical Center (North Quadrant sub-EOC)	30 July	~3,000

F. InfoSentro	Date conducted	Number of participants	% respondents that rated the activity as Satisfactory or better
1. Launching of the Valley Fault System in Greater Metro Manila ATLAS	18 May	177	100
2. Surigao del Sur Media Briefing	15 September	20	No data
3. Press Conference on Quezon City Science Community Foundation, Inc. (QCSCFI)	14 October	21	100
4. Hand -Over Ceremony Project for Improvement of Equipment for Disaster Risk Management: Enhancement of Volcano, Earthquake and Tsunami Warning Systems for Disaster Reduction in the Philippines	15 October	74	100
5. CD Launch of Handa Awit Lindol - UP collaboration	13 July	100	No data
6. Outcome 8 Press Conference - DOST	14 July	120	No data

Disaster Risk Reduction (DRR) Activities

G. PHIVOLCS Exhibits	Venue	Date conducted	Number of participants
NSTW	SMX, Pasay City	July 24-28, 2015	5,734
RSTW-Southern Luzon Cluster	Puerto Princesa, Palawan	Aug. 17-19, 2015	1,138
RSTW-Northern Luzon Cluster	Vigan City	Sep. 1-3, 2015	1,460
RSTW-Visayas Cluster	Ormoc City	Sep. 23-25, 2015	1,541
RSTW-Mindanao Cluster	Zamboanga City	Dec. 3-5, 2015	1,735
Requested Exhibit			
Congress Exhibit	House of the Representative, QC	Feb. 26, 2015	165
Senate Exhibit	Senate of the Philippines	Mar. 4, 2015	147
DepEd Exhibit	DepEd, Pasig	Mar. 30, 2015	83
New Era Exhibit	New Era University, QC	Sep. 7-9, 2015	750
Field Station Exhibit			
Puerto Princesa Seismic Station Exhibit	Puerto Princesa, Palawan	Apr. 28-May 8, 2015	N/A
Cagayan De Oro Seismic Station Exhibit	Malasag, Cagayan De Oro City	Sep. 26-Nov. 7, 2015	N/A

H. Educational Tours		
Month	Total Number	Number of participants
January	2	251
February	5	511
March	1	83
April	Summer Break	Summer Break
May	1	25
June	1	121
July	5	677
August	6	705
September	24	3091
October	17	1561
November	12	1120
December	14	1865
Total	88	10010

I. Lectures		
Month	Total number	Number of participants
January	8	197
February	7	463
March	22	952
April	18	746
May	22	961
June	64	995
July	112	2142
August	79	1950
September	54	1560
October	30	1546
November	28	750
December	10	1814
Total	454	14076

Disaster Risk Reduction (DRR) Activities

J. Walk-the-Fault		
Area	Date	Stakeholders Reps
LGU-wide		
Silang, Cavite	June 16	Silang LGU - DRRMC Officers, Ayala Westgrove Staff
Biñan, Laguna	June 18	Biñan LGU – DRRMC Officers
Taguig City	June 19	Taguig LGU-DRRMC(Mayor Cayetano + Erwin Niño Palima) & MMDA (Chair F. Tolentino, GM Jimenez)
San Pedro, Laguna	June 22	San Pedro LGU-DRRMC
San Mateo, Rizal	June 24	San Mateo DRRMC, Engr. Eduardo Dorado + Engrng Dept
Gen. Mariano Alvarez, Cavite	July 13	GMA-DRRMC, Cavite PDRRMC
Carmona, Cavite	July 16	Carmona LGU – DRRMC Officers
Calamba, Laguna	July 21	Calamba DRRMC
Subdivisions/School/Private Lots		
Pedro E. Diaz High School, Alabang, Muntinlupa Muntinlupa Institute of Technology, Muntinlupa City Buli Elementary School, Brgy. Buli, Muntinlupa City Sto. Niño Catholic School, North Signal Village, Taguig City	May 27	Muntinlupa LGU, PEDHS Officials (R. Cabanting, O. Santos) Muntinlupa LGU, School Directress (C. Cabotaje) BES Staff, OIC (N.M. Sumague) SNCS Staff, Principal (M.L. Catig)
Barangka National High School, Marikina City	May 29	Barangka NHS & ES Officials, Marikina DRRMO, DPWH-Marikina, DEPED-Marikina
Our Lady of the Abandoned School, Muntinlupa City APEC Schools – Poblacion, Muntinlupa City Abbey Place Subdivision, Brgy. Tunasan, Muntinlupa City	June 1	Muntinlupa City DRRMC, OLACS Staff and Officials Muntinlupa City DRRMC, APEC School Staff Muntinlupa City DRRMC, Project Engineer and Staff
BJMP, Brgy. South Bicutan, Taguig City Posadas Village (1 private lot-Limcaoco Residence) Army's Angels Integrated School, Taguig City	June 8	BJMP Project Engineer (R. Alip)
St. Therese of the Child Jesus School, San Pedro, Laguna	June 10 June 22	STCJS Faculty
St. Scholastica's College, Westgrove, Silang, Cavite	June 16	SSC Faculty, Silang, Cavite LGU – Council and DRRMC
La Vista Subdivision, Brgy. Pansol, QC	June 26	La Vista HOAI officers (Ms. Laura Mirabueno, some residents, Brgy. Pansol officials/tanod)
Rockwell Land Corp Properties, Excavation Site verification, Brgy. Sucat, Muntinlupa City	July 29	Rockwell Properties representative, Contractors
Manuela Properties, (Starmall), Alabang, Muntinlupa City	September 7	Building Architect Nelson A. Diamante & Engr. Peter Mariñas
FilHeights Subdivision, Brgy. Batasan Hills/Bagong Silangan, Quezon City	September 15	FilHeights Subd. HOAI Officer - Dr. Foronda (President), Engr. George Agbayani, Ms. Raine
Ateneo de Manila University, Katipunan Ave, QC	November 13	ADMU Safety Officer Fr. Louie Catalan, Edwin Macasias, Gilbert Mandia, Roxette (Gen. Facilities Mgt. Ofc)

Final Workshop and JCC Meeting JICA SATREPS Project



Hand-Over Ceremony - Project for Improvement of Equipment for Disaster Risk Management



Disaster Risk Reduction Services

Valley Fault System Launching



PHIVOLCS InfoSentro for Surigao del Sur Media



Project Launching of Reducing the Impact of Volcanic Disaster in the Philippines - Taal - PHIVOLCS-ULB



Rapid Earthquake Disaster Assessment System (REDAS) Training



Disaster Risk Reduction Services

National Science and Technology Week (Mall of Asia)



Regional Science and Technology Week



Teachers' Training Surigao del Sur and Tandag City



Teachers' Training Division of Bulacan and Malolos City



Earthquake and Tsunami Awareness and Preparedness for the Province of Surigao del Sur LGUs



Development of Human Resources for the S&T Sector

PHIVOLCS continues to focus on building individual competencies and organizational capacities by providing opportunities such obtaining advance degrees and participating in learning and development interventions. Tables show the lists of PHIVOLCS staff with doctorate and masteral degrees, and currently pursuing PhDs and masteral degrees.

Also shown are lists of foreign and local learning and development activities attended by PHIVOLCS staff during the year and the lists of research papers published by PHIVOLCS staff in international journals. PHIVOLCS continued to implement the three strategic initiatives that will lead to the achievement of PHIVOLCS' organizational outcome of being a highly responsive and competent organization by having highly prominent, globally-recognized experts; motivated, rewarded and competent staff; effective systems, procedures and structures; and inspiring, dynamic leadership.

Strategic Initiatives	Objectives	Accomplishments
Strategic Human Resource Management and Development (SHRMD)	To strategically develop and manage PHIVOLCS' human resources to help deliver the institute's services effectively and become more responsive to the demands of its stakeholders.	<ul style="list-style-type: none"> • PHIVOLCS Functional Competency Dictionary developed • Competency profiles for 40 positions identified • Competency-based job descriptions prepared for 40 positions • 80% or 168 employees attended 66 learning and development interventions
Leadership Enhancement and Development (LEAD)	To support and enhance right leadership qualities in the workplace and develop potential future leaders in the institute	<ul style="list-style-type: none"> • 100% of senior staff attended leadership, managerial, supervisory and organizational trainings
	To promote interpersonal working relationship and open communication between staff and supervisors	<ul style="list-style-type: none"> • Teambuilding workshop on June 4-5, 2015 at the Clearwater Country Club in Clarkfield Pampanga with 111 participants
	To recognize and reward employees' exemplary performance	<ul style="list-style-type: none"> • Research Publication Award given to authors and co-authors of 20 published research papers • Awards for completion of masteral degrees given to 4 PHIVOLCS staff
	To ensure continuity and improve quality of organizational operations and productivity	<ul style="list-style-type: none"> • Web-based Results-based Performance Management System (RBPMS) developed • Supplies Inventory System established • VND Deployed Monitoring System developed
Strategic Performance Assessment and Development for Excellence (SPADE)	To ensure the alignment of PHIVOLCS' operations in response to the strategic plan	<ul style="list-style-type: none"> • Accomplishment of projects assessed and quarterly project assessment report generated • Year-end project accomplishment review conference conducted • Major Final Outputs Performance Indicators reports generated and submitted to oversight agencies • PHIVOLCS commitment with the requirements of Performance-Based Bonus complied

List of PHIVOLCS personnel with PhD

Name	Degree/Course	Year Obtained	School Attended
Bartolome C. Bautista	Doctor of Science in Earth and Planetary Sciences	1999	Kyoto University, Kyoto, Japan
Ma. Leonila P. Bautista	Doctor of Science in Earth and Planetary Sciences	1999	Kyoto University, Kyoto, Japan
Rolly E. Rimando	Ph D in Geological Sciences	2001	State University of New York at Binghamton, New York, USA
Renato U. Solidum, Jr.	Ph D in Earth Sciences	2002	Scripps Institution of Oceanography, University of California, San Diego, USA
Arturo S. Daag	Ph D in Applied Geomorphology and Engineering Geology	2003	International Aerospace Survey and Geophysics Science, Enschede, The Netherlands
Teresito C. Bacolcol	Ph D in Geology	2003	Pierre Et Marie Curie Universite, Paris, France
Winchelle Ian G. Sevilla	Ph D in Geophysics	2010	Pennsylvania State University Pennsylvania, USA
Rhommel N. Grutas	Ph D in Environmental Science and Technology	2012	Tokyo Institute of Technology Tokyo, Japan
Paul Karson B. Alanis	Dsc. Earth and Environmental Science	2014	Tokai University, Tokai, Japan

List of PHIVOLCS personnel with PhD in progress

Name	Degree/ Course	Projected Year	School Attended
Perla J. Delos Reyes	Ph D. in Applied Geology	2016	University of South Wales, Sydney, Australia
Raymond Patrick R. Maximo	Doctoral Program in Geochemistry	2018	Université libre de Bruxelles (ULB), Belgium
Ma. Antonia V. Bornas	Doctoral Program in Volcanology	2018	Université libre de Bruxelles (ULB), Belgium

Development of Human Resources for the S&T Sector

List of PHIVOLCS personnel with MS/MA Degrees

Name	Degree/Course	Year Obtained	School Attended
Nemesio M. Canete	MS in Management	1996	Leyte Normal University, Leyte
Ma. Mylene M. Villegas	MS in Geology	1997	Arizona State University, Tempe, Arizona, USA
	Master of Development Communication	2012	University of the Philippines, Open University
Ramil B. Atando	MS in Public Management	1999	University of the Philippines, Visayas, Iloilo City
Rebecca E. Valenzuela	MS in Business Administration	2002	Wesleyan University, Taft Avenue, Manila
Perla J. Delos Reyes	MS in Geology	2003	University of Canterbury, Christchurch, New Zealand
Jeffrey S. Perez	MS in Civil and Environmental Engineering	2004	Saitama University, Saitama, Japan
Ma. Antonia, V. Bornas	MS in Earth and Planetary Sciences	2005	Hokkaido University, Japan
Maricel L. Capa	MS in Information Technology	2005	Technological University of the Philippines, Ayala Boulevard, Manila
Felomina C. Cayabyab	Master of Community Development	2005	University of the Philippines, Diliman, Quezon City
Marilou V. Del Rosario	MS in Public Administration	2006	Polytechnic University of the Philippines, Manila
Ma. Lynn P. Melosantos	MS in Public Management	2006	Development Academy of the Philippines, Pasig City
Kathleen L. Papiona	MSc in Environmental Science and Technology	2007	Tokyo Institute of Technology Tokyo, Japan
Janila B. Deocampo	Master of Engineering in Built Environment	2007	Tokyo Institute of Technology, Yokohama, Japan
Angelito G. Lanuza	Master of Arts in Urban and Regional Planning	2008	University of the Philippines, Diliman, Quezon City
Joan C. Salcedo	MS in Disaster Management	2010	National Graduate Institute for Policy Studies, Japan
Ma. Isabel T. Abigania	MS in Geology	2011	University of the Philippines, Diliman, Quezon City
Nolan C. Evangelista	MS in Disaster Management	2011	National Graduate Institute for Policy Studies, Japan
Mabelline T. Cahulogan	Master of Natural Hazards	2011	Australian National University, Australia
Jun D. Bonita	MS in Physics	2011	Mindanao State University, Iligan Institute of Technology, Iligan City
Raymond R. Maximo	MS in Geology	2011	Northern Illinois University, DeKalb, IL, USA
Ramona D. Labao	MS in Public Administration	2012	Polytechnic University of the Philippines, Manila
Rey M. Lumbang	MS in Disaster Management	2013	National Graduate Institute for Policy Studies, Japan
Julius M. Galdiano	MS in Disaster Management	2013	National Graduate Institute for Policy Studies, Japan

List of PHIVOLCS personnel with MS/MA Degrees

Name	Degree/Course	Year Obtained	School Attended
Abigail C. Pidlaon	Master of Science and Technology in Spatial Information	2013	University of South Wales Sydney, Australia
Richel B. De Mesa	Ms in Public Administration	2013	Polytechnic University of the Philippines, Sta. Mesa, Manila
Angela G. Montes	Ms in Public Administration	2013	Polytechnic University of the Philippines, Sta. Mesa, Manila
Margarita P. Dizon	Master in Environmental Science and Civil Engineering	2013	Saitama University, Saitama, Japan
Mary Jane T. Catapang	Ms in Information Technology	2014	Macquarie University, Sydney, Australia
Jayvie H. Nadua	Masteral Degree on Geographic Information System (Gis) and Remote Sensing	2014	Macquarie University, Sydney, Australia
Johnlery P. Deximo	MS in Earthquake, Earthquake Engineering and Disaster Policy	2015	National Graduate Institute for Policy Studies, Japan
Karl Vincent D. Soriano	MS Tsunami Warning	2015	National Graduate Institute for Policy Studies, Japan

List of PHIVOLCS personnel with MS degrees in progress

Name	Degree/Course	Year Started	School Attended
Dandy N. Camero	MS in Seismology, Earthquake Engineering and Tsunami Disaster Mitigation	01 October 2015	National Graduate Institute for Policy Study (GRIPS)
Arianne Gail S. Rivera	MS in Seismology, Earthquake Engineering and Tsunami Disaster Mitigation	01 October 2015	National Graduate Institute for Policy Study (GRIPS)
Brian James S. Aggangan	Master of Engineering Science Geospatial Engineering	15 June 2015	University of New South Wales, Sydney, Australia
Alfie R. Pelicano	Master of Geoscience	15 June 2015	Macquarie University, Sydney, Australia

Development of Human Resources for the S&T Sector

Local Trainings/Seminars/Conferences

Title of Activity	Name of Participants		Venue	Duration
1 st Quarter 2015 Human Resource (HR) Managers Fellowship Meeting and Learning Session	Richel B. De Mesa	Eleuterio G. Adonis	DENR, Main Bldg. Visayas Ave. Q.C.	January 23
Short Course Intro to Visual Basic Net	Abigail A. Polintan Gianico G. Noble	Arianne Gail S. Rivera Dandy N. Camero	U.P. Diliman, System Information Technology	January 24 to February 21
PSINSAR Training	Arturo S. Daag Teresito C. Bacolcol Ma Antonia V. Bornas Jeffrey S. Perez Mabelline T. Cahulogan Abigail C. Pidlaon Jayvie S. Nadua Cathy D. Pogay	Alfie R. Pelicano Genesis B. Sapla, Jr. Robelyn Z. Mangahas Bryan J. Marfitto Kimberley M. Vitto Deo Carlo E. Llamas Angela G. Montes	PHIVOLCS Meeting Room, C.P. Garcia Ave. U.P. Campus, Diliman, Q.	January 28
Short Term Training on Recruitment, Selection and Placement and Workforce Planning	Richel B. De Mesa		Sequoia Hotel, Mother Ignacia Avenue, Dilliman, Q.C	January 27-28
Human Resources Development Planning/Learning and Development	Arturo S. Daag Ma. Antonia V. Bornas	Richel B. De Mesa	Sequoia Hotel, Mother Ignacia Avenue, Dilliman, Q.C	January 27-28
11 th CBMS Philippines National Conference	Abigail Polintan		Crowne Plaza Manila Galleria	February 2-4
Training on UAV Photogrammetry	Bartolome C. Bautista Arturo S. Daag Ma. Isabel T. Abigania Analyn D. Aquino Abigail Pidlaon Mabelline T. Cahulogan Raymond R. Maximo Abigail C. Pidlaon Daniel Jose L. Buhay Cathy D. Pogay	Abigail A. Polintan Rudy A. Lacson, Jr. Gerald A. Malipot Dave B. Emerenciana Ann Lorraine T. Delos Santos Deo Carlo E. Llamas Robelyn Z. Mangahas Bryan J. Marfito Kimberley M. Vitto Emmanuelle D. Mitiam	PHIVOLCS Bldg. Dliman, Q. C.	February 27, March 2-4
2015 CES Circle Forum Series: Levelling Up Philippine Competitiveness in the Context of Regional Integration - Social Media in Government	Renato U. Solidum, Jr.	Ma. Mylene M. Villegas	Diamond Hotel, Roxas Blvd., Manila	February 20
Quality Assurance in Titration, Practical Recommendations and Workshop for Potentiometric and Karl Fisher Titration	Raul Ryan R. Rebadulla	Eric Lino C. Arconado	Marriot Hotel, Manila, New Port City Complex Pasay City	March 6
Reducing the Impact of Volcanic Disaster in the Philippines: Towards Improved Capacities to Cope with Volcanic Hazards	Juan M. Cordon, Jr.	Lawrence Aaron C. Banes	Club Balai Isabel, Talisay, Batangas	March 11

Local Trainings/Seminars/Conferences

Title of Activity	Name of Participants		Venue	Duration
Project Agos' Social Media Workshop for CSCAND Agencies and Technical Partners	Ma. Mylene M. Villegas Joan C. Salcedo Jeffrey S. Perez Lucille Rose C. Del Monte	Princess S. Decierdo Winchelle Ian G. Sevilla Arianne Gail S. Rivera Abigail A. Polintan	University Hotel, U.P. Diliman, Q.C.	April 7
Capacity Enhancement Training on GPS Modeling	Ronald C. Pigtaian Brian James S. Aggangan Micah Angeli F. Sayco Winchelle Ian G. Sevilla Paul Karson B. Alanis Christian M. Clarito Jeanne Anne M. Dagoy Alfie R. Pelicano Genesis B. Sapla	April Angelique Dominguiano Deborah P. Fernandez Mari-Andylene Y. Quintia Jose Joel D. Marilla Paolo D. Reniva Lawrence C. Banes Nerissa V. Sena Manuel M. Sexon Nancy D. Largo	PHIVOLCS Conference Room Q.C.	April 14-24
7 th Merck Millipore Summit	Ma. Concepcion L. Barairo		Marriot Hotel, Newport City Complex, Pasay City, Metro Manila	June 5
Training Program on Methods and Techniques	Ma. Lynn P. Melosantos		University of the Philippines, Diliman, Q.C	April 20-24
Training on Learning Measurement and Evaluation	Richel B. De Mesa	Angela G. Montes	CSC Main Office, Batasan Hills, Q.C	April 20-21
Training Course on Earthquake and Earthquake Hazards: An orientation to New Earthquake Geology and Geophysics Research and Development Section Members	Margarita P. Dizon Deo Carlo E. Llamas Bryan J. Marfito Kimberley M. Vitto Robelyn Z. Mangahas	Emmanuelle D. Mitiam Daniel Jose L. Buhay Bhenz Rodriguez Genesis B. Sapla, Jr.	PHIVOLCS Conference Room Q.C.	May 11-15
Training on Basic Customer Service Skills (BCSS)	Emmanuel D. Mitiam	Maribel A. Breboneria	CSC-NCR, Kaliraya Street, Banawe, Q.C	May 21-22
Training on Basic GIS	Rhomme N. Grutas Ma. Myleen M. Villegas Jeffrey S. Perez Charmaine V. Villanueva Melchor P. Lasala Roberto B. Tiglao Harley A. Lacbawan Dawn Elaine M. Rivera Ramon Carlo N. Padilla Camille G. Dungog Bryan J. Marfito	Cathy D. Pogay Emmanuelle D. Mitiam Joan M. Beliran Dandy N. Camero John Paul V. Fallarme Karen M. Garcia Arianne Gail S. Rivera Jun D. Bonita Angelito G. Lanuza Ireanne S. Yago Kimberly M. Vitto	PHIVOLCS, C.P. Garcia Avenue, U.P. Campus, Diliman, Q.C	May 27- 29
Basic Python Programming	Bartolome C. Bautista Artuo S. Daag Rhommel N. Grutas Henremagne C. Penarubia Janila B. Deocamp Abigail C. Pidlaon Kervin E. Macaranas	Jayvie H. Nadua Analyn D. Aquino Jun D. Bonita Analyn D. Aquino Genesis B. Sapla Debbie Erica R. Estipular Abigail A. Polintan	PHIVOLCS , C.P. Garcia Ave. U.P. Campus, Diliman, Q.C.	June 22, 24-26

Development of Human Resources for the S&T Sector

Local Trainings/Seminars/Conferences

Title of Activity	Name of Participants		Venue	Duration
Regional Contingency Planning Formulation Workshop	Florenette B. Garcia		Dakak Park and Beach Resort, Dapitan City	July 13-16
Training Workshop on Gender and Development (Gad) Planning and Budgeting in the Context of RA 9710: Magna Carta of Women	Angela G. Montes		UPCWS Conference Room, U.P. Campus, Diliman Q.C.	July 21-23
Information Security and Privacy Seminar	Debbie Erica R. Estipular	Ana Marie P. Robielos	ICTO, U.P. Campus, Diliman, Q.C.	July 29-31
Development of WebGIS-Based Earthquake and Volcano Information System Using Foss and OGC-Based Standards	Arturo S. Daag Mabelline T. Cahulogan Analyn D. Aquino Abigail C. Pidlaon Jayvie H. Nadua Ma. Isabel T. Abigania Genesis B. Sapla Robelyn Z. Mangahas Melquiades S. Figueroa II Debbie Erica R. Estipular	Kervin E. Macaranas Ana Marie R. Emerenciana Ma. Concepcion L. Barairo Dave B. Emerenciana Ishmael C. Narag Myleen C. Enriquez Dante S. Soneja Jun D. Bonita Erlinton B. Olavere	PHIVOLC S Bldg. C.P. Garcia Ave. U.P. Campus, Diliman. Q.C..	August 3-7
Seminar on Social Media for Development	Charmaine V. Villamil	Lucile Rose C. Del Monte	ICTO, C.P. Garcia Ave., U.P. Campus Diliman, Quezon City	August 6-7
Seminar on Anti-Sexual Harassment	Renato U. Solidum, Jr. Delfin C. Garcia Manolo Gelido Ma. Geraldine Gelido Norman Valencia Bengino Santos, Jr. Teodoro Balajadia Rebecca Valenzuela Arnel Biscocho Eleanor Manuel Aurelio Amper Shirley Masangkay Allan Kinski Abengoza Lowella De Guzman Hector Tabuzo Anna Encarnacion Monsita Olavere Debbie Erica Estipular Ana Marie Emerenciana Carmelita Rivera Maribel Breboneria Klarein Genie Sabbun Richel De Mesa Melquiades S. Figueroa II Alfredo D. Aguilar	Maila Palatino Anna Shellah Mae Enbien Erlinton Antonio Olavere Jun Bonita Dandy Camero Arianne Gail Rivera Lara Jennina Gianan Karen Garcia Julius Galdiano Henremagne Penarubia Roberto Tiglao Car Lou Tababan Abigail Polintan Leni Elena Torrevillas Angelito Lanuza Dante Soneja Ginaico Noble Ishmael C. Narag Gerald Malipot Jeane Anne Dagoy Nancy D. Largo Winchelle Ian G. Sevilla Dave Benedict Emerenciana Rudy A. Lacson, Jr. Augusto Ronald C. Pigtain	PHIVOLCS Auditorium, C.P. Garcia Ave. U.P. Campus, Diliman. Q.C.	August 13

Local Trainings/Seminars/Conferences

Title of Activity	Name of Participants		Venue	Duration
	Charlita L. Mariano Rommel Quintos Kervin Macaranas Felomina C. Cayabyab Joan M. Beliran Angela G. Montes Melissa Mae Tamayo Rygin Joy Ramos Dynie Doloiras Eumelia Belo Ma. Mylene M. Villegas Melcario D. Pagtalunan Lucille Rose Del Monte Richard Ballon Angelito De Guzman Ruben Lamela	Daniel Jose L. Buhay Bryan J. Marfito Robjunelieaaa Lim Emmanuelle D. Mitiam Mary Rose San Diego Analyn Aquino Ericson Bariso Arturo S. Daag Kimberley Vitto Robelyn Z. Mangahaas Jayvie H. Nadua Mabelline Cahulogan Maria Lynn P. Melosantos Charmaine V. Villamil Joan C. Salcedo		
Web Accessibility Workshop for NCDA Member and other Selected National Agencies	Lucille Rose C. Del Monte	Melissa Mae P. Tamayo	ICTO, C.P. Garcia Ave., U.P. Campus Diliman, Quezon City	August 24-26
PHILGEPS Buyers Training	Debbie Eric R. Estipular Maribel A. Breboneria	Katherine V. Veracruz Klarein Genie V. Sabbun	Am Zone Internet Café, Ortigas Ave. Extension, Rosario Pasig City	August 25-26
CSC-PSLMC Zonal Orientation on Public Sector Unionism	Emma C. Paguilligan Winchelle Ian G. Sevilla Ester B. Garrido	Narciso F. Diongzon Manolo L. Gelido	Tagaytay Haven Hotel, West Mendez, Tagaytay City	August 25-27
Training Workshop on the Use of the Agency Procurement Compliance and Performance Indicators	Richel B. De Mesa	Klarein Genie V. Sabbun	DAP Bldg., Ortigas Center Pasig City	September 10-11
Training Program on Research Methods in Public Administration	Jeffrey S. Perez		Center for Policy and Executive Development, NCPAG, U.P. Diliman, Quezon City	September 21-25
Training in Information Systems Strategic Planning	Debbie Erica R. Estipular		ICTO, C.P. Garcia Ave., U.P. Campus Diliman, Quezon City	September 22-24
Training on Management of R & D Talents in the DOST	Richel B. De Mesa		MIRDC Auditorium, MIRDC Compound, Bicutan, Taguig City	October 13-15

Local Trainings/Seminars/Conferences

Title of Activity	Name of Participants		Venue	Duration
Training on ICT for Disaster Risk Reduction, Climate Change, Green Growth and Sustainable Development	Kervin E. Macaranas		ICTO, C.P. Garcia Ave., U.P. Campus Diliman, Quezon City	October 14-16
PF Sense Seminar	Kervin E. Macaranas	Ana Marie R. Emerenciana	Lourdes Suite, Kalayaan Ave. Corner Makati Avenue, Makati City	October 17
36 th Asian Conference on Remote Sensing	Arturo S. Daag Jayvie H. Nadua	Cathy D. Pogay Marie Thess D. Quilalang	Crown Plaza Hotel, Ortigas Center, Pasig City	October 19-23
Training on Java Programming	Maricel L. Capa	Mary Jane T. Catapang	ICTO, C.P. Garcia Ave., U.P. Campus Diliman, Quezon City	October 19 to November 23
Training on ICT Services in Government-IT Infrastructure Library	Kervin E. Macaranas		ICTO, C.P. Garcia Ave., U.P. Campus Diliman, Quezon City	October 28-30
Seminar for PANalytical Products	Robjunelieaaa B. Lim	Raul Ryan R. Rebadulla	Crimson Hotel, Filinvest, Muntinlupa City	October 28
Capacity Building/ Training of Government Accounting Manual	Teodoro A. Balajadia		DENR, Visayas Avenue, Q.C.	November 3-4
4 th GAD Budget Forum	Richel B. De Mesa Myleen C. Enriquez Angela G. Montes	Emma C. Paguiligan Raymond R. Maximo	Occupational Safety and Health Center, Agham Road, Q.C.	November 4
Orientation and Knowledge Training on Contribution of Earthquake Risk Mitigation	Roschele G. Ablan Christian Eric G. Almira Anna Shella Mae C. Enbien Karen M. Garcia Lara Jennina A. Gianan Mary Ann T. Montion Bryan A. Nadimpally Maila S. Palatino Bhenz Rodriguez Keith Lawrence V. Rambla	Daniel Jose L. Buhay Deo Carlo E. Llamas Robelyn Z. Mangahas Bryan J. Marfita Kimberley M. Vitto Teresito C. Bacolcol Jeffrey S. Perez Charmaine V. Villamil Ma. Mylene M. Villegas	B Hotel, Quezon City	November 10-12
Training on ICT Resource and Acquisition-Project Terms of Reference	Debbie Erica R. Estipular	Katherine V, Veracruz	ICTO, C.P. Garcia Ave. U.P. Campus, Diliman, Q.C.	November 23-27
Seminar on the Updates and Walk-through on the use of the Electronic Tax Remittance Advice (ETRA)	Marilou V. Del Rosario	Eleanor E. Manuel	Hotel Rembrandt, Tomas Morato St., Q.C.	November 25

Local Trainings/Seminars/Conferences

Title of Activity	Name of Participants		Venue	Duration
Linux System Administration (Level 1) Training	Micah Angeli F. Sayco Augusto Ronald C. Pigtail Dave B. Emerenciana Gerald A. Malipot Rudy A. Lacson Mary Jane T. Catapang Kenn John V. Veracruz Maricel L. Capa	Abigail C. Pidlaon Ma. Concepcion L. Barairo Rey M. Lumbang Lawrence C. Banes Deborah P. Fernandez April Angelique Domingiano Mari-Andylene Y. Quintia	ICTO, C.P. Garcia Ave. U.P. Campus, Diliman, Q.C.	December 7-11
GSIS Pre-Retirement Seminar	Paolo D. Reniva Henry G. Imperial Marcial P. Labininay Benjamin P. Tanatan Nane M. Danlag Evelyn B. Serenado Manuel Sexon Ester B. Garrido Anna S. Encarnacion Miguel Ruel Quijano Charlita L. Mariano Delfin C. Garcia Monsita Olavere Ricardo Seda Alejo V. Baloloy Nemesio Canete Jose Joel Marilla	Eduardo P. Laguerta Luisito M. Salugsugan Rainier G. Amilbahar Nancy D. Largo Nora R. Campita Benjamin C. Bangayan Porfirio T. de Peralta Jr. Aurelio G. Amper Richel B. De Mesa Angelito De Guzman Robinson F. Jorgio Melchor Lasala Eleuterio G. Adonis Nolan C. Evangelista Roberto M. Esplida Eumelia Belo Lowella De Guzman	PHIVOLCS Training Room, C.P. Garcia Ave., U.P. Camous, Diliman, Q.C.	December 11

Foreign Trainings/Seminars/Conferences

Title of Activity	Name of Participants	Venue	Duration
Hukodan International Symposium on Active Fault Mapping 2015	Arturo S. Daag Mabelline T. Cahulogan	Japan	January 13-16
4 th Panel Meeting of Experts on Area Business Continuity, the JICA-AHA, Area BCP Plan Formation for Industrial Agglomerated areas in the ASEAN Region	Renato U. Solidum, Jr.	Bangkok, Thailand	January 29-31
Core Member Meeting on Asian Consortium of Volcanology	Renato U. Solidum, Jr. Ma. Antonia V. Bornas	Japan	February 4
United Nations Office for Outer Space Affairs Seminar on the "Role of Space-Based Applications in the Disaster Risk Reduction"	Renato U. Solidum, Jr.	Austria	February 9
4 th Meeting of the ICG/PTWS Regional Working Group on Tsunami Warning and Mitigation in the South China Sea Region (ICG/PTWS-WG/SCS-IV)	Ishmael C. Narag	Indonesia	February 11-12
Pre-Volcano, Ocean, Typhoon and Earthquake (VOTE) Technical Working Group (TWG) Meeting between Philippines and Taiwan	Renato U. Solidum, Jr. Teresito C. Bacolcol	Taiwan	March 8-11
3 rd United Nations World Conference on Disaster Risk Reduction	Renato U. Solidum, Jr.	Japan	March 14-18
ESCAP 4 th Session of the Committee on Statistics	Arturo S. Daag	Bangkok, Thailand	March 27
5 th Anniversary Pacific Tsunami Warning System (PTWS) Symposium	Renato U. Solidum, Jr. Ma. Mylene M. Villegas	Honolulu, Hawaii, USA	April 20-21
26 th Session of the International Governmental Coordination Group (IGC/PTWS)	Renato U. Solidum, Jr. Ma. Mylene M. Villegas	Honolulu, Hawaii, USA	April 22-24
5 th Network for Observation of Volcanic and Atmospheric Change (NOVAC)	Raul Ryan R. Rebadulla	Costa Rica	April 27 to May 1
1 st UNUD/YU (Uduyana University/Yamaguchi University) Collaboration Seminar on Application of Satellite Remote Sensing Technologies for Environment and Disaster Management	Arturo S. Daag	Indonesia	May 25-27
2015 CSAV International Training Course in Volcano Hazards Monitoring	Eric Lino P. Arconado April Angelique Dominguiano	Hawaii and Washington, USA	May 31 to July 24
4 th International Conference on Earth Science and Climate Change	Julius M. Galdiano	Alicante, Spain	June 16-18
Tsunami Evacuation Plans, Maps and Procedures Course Development Meeting	Ma. Mylene M. Villegas	Honolulu, Hawaii, USA	June 22-26
Preparatory Meeting for Sentinel Asia Steering Committee	Arturo S. Daag	Singapore	June 30 to July 1
KOICA-JICA Joint Capacity Development Program on Landslide and Slope Hazards Prevention	Ma. Lynn P. Melosantos Margarita P. Dizon	South Korea	June 21 to July 11
Annual Meeting of Asia Oceana Geosciences Society (AOGS)	Ma Antonia V. Bornas Winchelle Ian G. Sevilla Mary Jane T. Catapang	Singapore	August 1-15

Foreign Trainings/Seminars/Conferences

Title of Activity	Name of Participants	Venue	Duration
Training on Geophysical Instrumentation and Data Processing Technique	Christian M. Clarito Micah Angeli F. Sayco	Singapore	August 10-16
Discuss Various Earth Science Related Projects with the Taiwanese Scientists	Teresito C. Bacolcol Erlinton Antonio B. Olavere Genesis P. Sapla, Jr.	Taiwan	August 16-23
Training on "CAP on a MAP-Improving Institutional Responsiveness to Coastal Hazards through Multi-Agency Situational Awareness"	Erlinton Antonio B. Olavere	Thailand	August 31 to September 11
Training Session and Workshop on Mapping of Earthquake – Related landforms in the Philippines	Kathleen L. Papiona Deo Carlo E. Llamas Robelyn Z. Mangahas Kimberly M. Vitto Daniel Jose L. Buhay	Japan	September 2-10
Senior Officials visit to Australia on Disaster Risk Management and Humanitarian Assistance	Renato U. Solidum, Jr.	Australia	September 27 to October 3
Group Training Course on Seismology, Earthquake Engineering and Tsunami Disaster Mitigation	Dandy N. Camero Arianne Gail S. Rivera	Japan	October 1, 2015 to September 30, 2016
AIV-AIQUA 2015 International Summer School of Volcanology and Quaternary Geology	Danikko Joh V. Rivera Robjunelieaaa B. Lim	Southern Italy	October 5-10
International Training Program for Seismic Design and Structures	Daphnie R. Agonia Leni Elena R. Torrevillas	Taipei, Taiwan	October 12-16
Meeting of Steering Committee Sentinel Asia Step 3	Arturo S. Daag	Bangkok, Thailand	October 13-15
World Meteorological Organization Seventh International Volcanic Ash Workshop	Renato U. Solidum, Jr.	Alaska, USA	October 19-23
AIV-AIQUA 2015 International Summer School of Volcanology and Quaternary Geology	Jeane Anne M. Dagoy Danikko John M. Rivera	Fujiyoshida, Japan	October 28 to November 9
Frontiers in earthquake hazards science and earthquake preparedness: Reducing the risk and promoting resilience	Teresito C. Bacolcol	Singapore	November 12-13
South China Sea Hazard Assessment Experts Meeting, Scientific meeting of experts for coordinated scenario analysis of future tsunami events and hazard mitigation for the South China	Bartolome C. Bautista Ishmael C. Narag	Xiamen, China	November 16-18
22 nd Session of the Asia Pacific Regional Space Agency Forum (APRSF-22)	Renato U. Solidum, Jr.	Bali, Indonesia	November 28 to December 4
Innovation Leadership Forum for DOST System Personnel	Rhommel N. Grutas	Taiwan	November 29 to December 12

Published Papers

Title	Authors
A Large Hydrothermal Reservoir Beneath Taal Volcano (Philippines) Revealed by Magnetotelluric Observations and Its Implications to the Volcanic Activity Proceedings of the Japan Academy Series B Physical and Biological Sciences	Paul Karson Alanis, Y. Sasai and T. Nagao
A Phreatic Explosion Model Inferred from a Very Long Period Seismic Event at Mayon Volcano, Philippines Journal of Geophysical Research – Solid Earth, USA	Rudy Lacson, Melquiades Figueroa II, Alejo Baloloy, Y. Maeda, H. Kumagai, T. Yamashina and T. Ohkura
Shallow S-wave Attenuation and Actively Degassing Magma Beneath Taal Volcano, Philippines Geophysical Research Letters, USA	Rudy Lacson, Melquiades Figueroa II, H. Kumagai, Y. Maeda, T. Yamashina
Overview of the Special Issue on “Geology and Recent Eruptions of Irosin Caldera and Bulusan Volcano, Southern Luzon, Philippines (Part 1) Journal of Geography (Chigaku Zasshi) Vol. 123 No. 1 (1056) Japan	Renato U. Solidum, Jr., M. Okuno, M.H. Mirabueno, C. Newhall, N. Geshi, T. Sugai, A. Tanaka and T. Kobayashi
Eruptive Sequence and Characteristics of the Irosin Ignimbrite, Southern Luzon, Philippines Journal of Geography (Chigaku Zasshi) Vol. 123 No. 5 (1052) Japan	Ma. Antonia Bornas, Eduardo Laguerta, Arturo S. Daag, Eriscon Bariso, T. Kobayashi, M.H. Mirabueno, M. Toril, T. Nakamura and M. Okuno
Fallout Tephra of the 2006-2007 Eruptions of the Bulusan Volcano, Southern Luzon, Philippines Journal of Geography (Chigaku Zasshi) Vol. 123 No. 5 (1056) Japan	Perla Delos Reyes, Ma. Antonia Bornas, Eduardo Laguerta, Mabeline Cahulogan, Raymond Patrick Maximo, Jeffrey Perez, Renato U. Solidum, Jr. M.C. Arpa, M.H. Mirabueno and B. Tubianosa
Stratigraphy and AMS Radiocarbon Dates of Sediments (IrBH-2) from the Irosin Caldera, the Philippines Journal of Geography (Chigaku Zasshi) Vol. 123 No. 5 (1056) Japan	Perla Delos Reyes, Eduardo Laguerta, Eriscon Bariso, M.H. Mirabueno, M. Toril, T. Fujiki, M. Okuno, T. Nakamura, T. Danhara, Y. Saito-kokubu and T. Kobayashi
Images Recordings of Eruption Clouds at Bulusan and Mayon Volcanoes, Philippines Journal of Geography (Chigaku Zasshi) Vol. 123 No. 5 (1056) Japan	Eduardo Laguerta and Kisei Kinoshita
Collection of Exposure Data to Underpin Natural Hazard Risk Assessments in Indonesia and the Philippines Understanding Risk in an Evolving World	Ma. Leonila P. Bautista, Bartolome C. Bautista and Ishmael C. Narag
Seismotectonics of Mindoro, Philippines Elsevier 2014	Erlinton Antonio Olavere, Bartolome C. Bautista, Renato U. Solidum, Jr., P. Chen, C. Wang and W. Liang
Enhancement of Earthquake and Volcano Monitoring and Effective Utilization of Disaster Mitigation Information in the Philippines Journal of Disaster Research Vol. 10 No.1	Hiroshi Inoue and Renato Solidum, Jr.
Performance of Broadband Seismic Network of the Philippines Journal of Disaster Research Vol. 10 No.1	Arnaldo A. Melosantos, Karl Vincent C. Soriano, Ponzch Colleen M. Alcones, Jose U. Pantig, Jun D. Bonita, Ishmael C. Narag, Hiroyuki Kumagai and Hiroshi Inoue
Regional Moment Tensor Analysis in the Philippines: CMT Solutions in 2012-2013 Journal of Disaster Research Vol. 10 No.1	Jun D. Bonita, Hiroyuki Kumagai and Masaru Nakano
Development and Operation of a Regional Moment Tensor Analysis System in the Philippines: Contributions to the Understanding of Recent Damaging Earthquakes Journal of Disaster Research Vol. 10 No.1	Baby Jane T. Punongbayan, Hiroyuki Kumagai, Nelson Pulido, Jun D. Bonita, Masaru Nakano, Tadashi Yamashina, Yuta Maeda, Hiroshi Inoue, Arnaldo A. Melosantos, Melquiades F. Figueroa II, Ponzch Colleen M. Alcones, Karl Vincent C. Soriano, Ishmael C. Narag and Renato Solidum, Jr.
Development of Seismic Intensity Meter for the Philippines Journal of Disaster Research Vol. 10 No.1	Hiroshi Inoue, Zhengying Fan, Melchor Lasala, Robert Tiglao, Bartolome Bautista, Debbie Rivera and Ishmael Narag

Published Papers

Title	Authors
Establishment of Earthquake Intensity Meter Network in the Philippines Journal of Disaster Research Vol. 10 No.1	Melchor Lasala, Hiroshi Inoue, Robert Tiglao, Zhengying Fan, Bartolome Bautista and Ishmael Narag
Building a Tsunami Simulation Database for the Tsunami Warning System in the Philippines Journal of Disaster Research Vol. 10 No.1	Yohko Igarashi, Toshihiro Ueno, Kenji Nakata, Vilma C. Hernandez-Grennan, Joan L. Cruz-Salcedo, Ishmael C. Narag, Bartolome C. Bautista and Takeshi Koizumi
Plate Convergence and Block Motions in Mindanao Island,, Philippines as Derived from Campaign GPS Observations Journal of Disaster Research Vol. 10 No.1	Takahiro Ohkura, Tako Tabei, Fumiaki Kimata, Teresito C. Bacolcol, Yasuhiko Nakamura, Artemio C. Luis, Jr., Alfie Pelicano, Robinson Jorgio, Milo Tabigue, Magdalino Abraham, Eleazar Jorgio and Endra Gunawan
Continuous GPS Observations in Mindanao Journal of Disaster Research Vol. 10 No.1	Mikio Tobita, Hisashi Suito, Tomokazu Kobayashi, Satoshi Kawamoto, Masayuki Yamanaka, Akira Suzuki, Toshiharu Enya, Masaki Honda, Tetsuro Imakiire, Artemio Luis, Alfie Pelicano, Teresito Bacolcol and Takahiro Ohkura
Fault Distribution, Segmentation and Earthquake Generation Potential of the Philippine Fault in Eastern Mindanao, Philippines Journal of Disaster Research Vol. 10 No.1	Jeffrey S. Perez, Hiroyuki Tsutsumi, Mabelleline Cahulogan, Desiderio P. Cabanlit, Ma. Isabel T. Abigania and Takashi Nakata
Coseismic Displacement and Recurrence Interval of the 1973 Ragay Gulf Earthquake, Southern Luzon, Philippines Journal of Disaster Research Vol. 10 No.1	Hiroyuki Tsutsumi, Jeffrey S. Perez, Jaime U. Marjes, Kathleen L. Papión and Noelynna T. Ramos
Geometry and Structure of the Philippine Fault in Ragay Gulf, Southern Luzon Journal of Disaster Research Vol. 10 No.1	Hirotake Yasuda, Teresito Bacolcol, Arturo Daag, Ericson Bariso, Emmanuelle Mitiam, Jaime Marjes and Takashi Nakata
Electromagnetic Observation at Taal Volcano Journal of Disaster Research Vol. 10 No.1	Paul Karson Alanis, Yoichi Sasai and Toshiyasu Nagao
Ground Deformation of Mayon Volcano Revealed by GPS Campaign Survey Journal of Disaster Research Vol. 10 No.1	Akimichi Takagi, Kenji Fujiwara, Takahiro Ohkura, Artemio C. Luis, Jr., Alejo V. Baloloy, Shinobu Ando, Eduardo Laguerta and Ma. Antonia V. Bornas
A Full-Scale Shaking Table Test on Philippine Concrete Hollow Blocks (CHB) Masonry Houses Journal of Disaster Research Vol. 10 No.1	Hiroshi Imai, Chikahiro Minowa, Angelito G. Lanuza, Henremagne C. Panarubia, Ishmael C. Narag, Renato U. Solidum, Jr., Kenji Okazaki, Tatsuo Narafu, Toshikazu Hanazato and Hiroshi Inoue
Development of Practical Tools for Vulnerability and Safety Evaluation of Houses in the Philippines Journal of Disaster Research Vol. 10 No.1	Hiroshi Imai, Akitoshi Nishimura, Angelito G. Lanuza, Henremagne C. Panarubia, Ronald S. Ison, Miriam L. Tamayo, Ishmael C. Narag, Renato U. Solidum, Jr., Hiroshi Inoue, Junzo Sakuma and Kenji Okazaki
Strategy for Dissemination of Practical Tools for Evaluation of Vulnerability and Safety of Houses in the Philippines Journal of Disaster Research Vol. 10 No.1	Joan L. Cruz-Salcedo, Ma. Mylene L. Martinez-Villegas, Ester B. Garrido, Angelito G. Lanuza, Hiroshi Imai, Henremagne C. Panarubia, Hiroshi Inoue and Renato U. Solidum, Jr.
Filipinos in Japan: Narratives of Experience from the March 11, 2011 Great East Japan Earthquake and Tsunami Journal of Disaster Research Vol. 10 No.1	Ma. Mylene Martinez-Villegas, Renato U. Solidum, Jr., Hiroshi Inoue, Hiroshi Imai, Angelito G. Lanuza, Henremagne Panarubia, Melcario Pagtalunan, Ma. Lynn P. Melosantos, Joan L. Cruz-Salcedo, Ishmael C. Narag, Melchor Lasala, Ma. Antonia V. Bornas, Perla J. Delos Reyes and Bartolome Bautista
Developing Manga-Style Tsunami Information Materials Based of the March 11, 2011 Great East Japan Earthquake Journal of Disaster Research Vol. 10 No.1	Ma. Mylene Martinez-Villegas, Lucille Rose Del Monte, Renato U. Solidum, Jr., John Paul Fallarme, Monique Realis, Melcario Pagtalunan and Eumelia Belo

Development of Human Resources for the S&T Sector

PHIVOLCS Team Building June 4-5, 2015



VMEPD training on Linux System Administration Level 1



Development of Human Resources for the S&T Sector

PAHRODF Training program for capacity development competency profiling and modelling



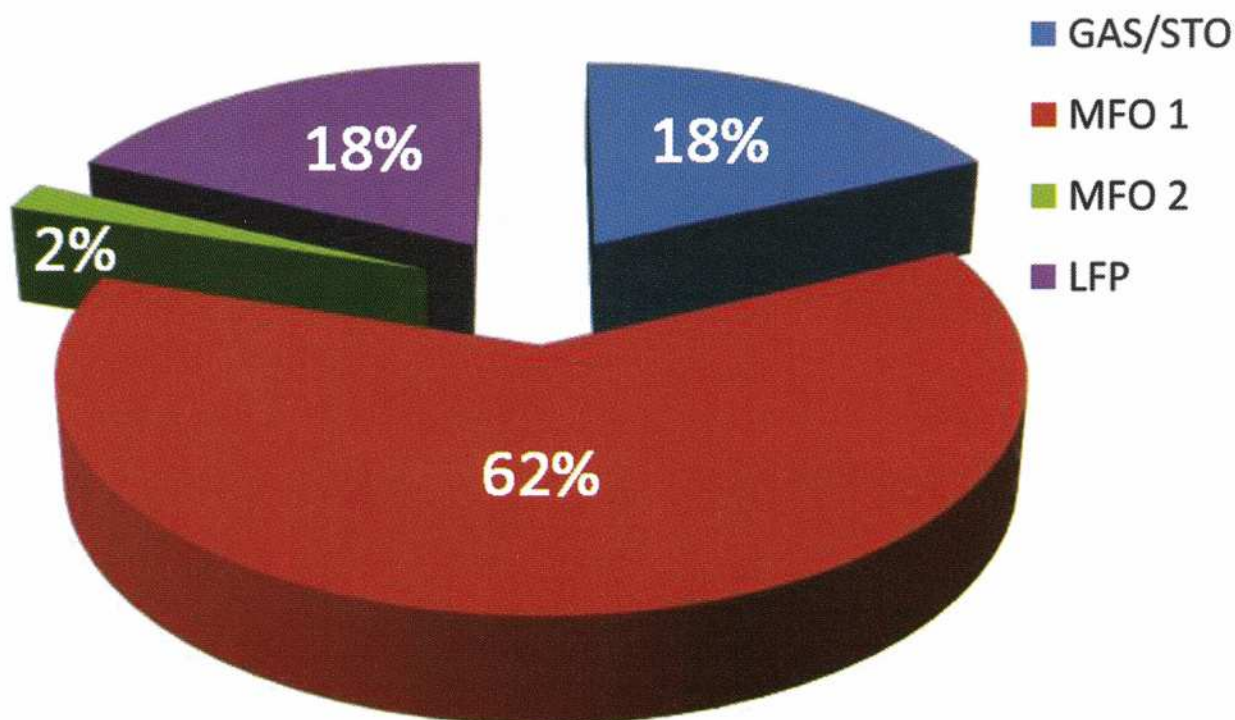
Awarding of PAHRODF Certificates



Summary of Financial Resources

For the year 2015, PHIVOLCS budget amounted to a total of Php 450,332,479.00 through the General Appropriations Act of FY 2015 - RA 10651. Of this total allocation, PPhp 387,063,272.00 was obligated of which 18% went to GAS/STO, 62% to MFO 1, 2% to MFO 2 and 18% to Locally-Funded Projects.

In terms of expense class, the following are the distribution of expenditures: 34% for Personnel Services, 37% for MOOE and 29% Capital Outlay.



Distribution of FY 2015 PHIVOLCS Expenditures by Expense Class and by MFO
(in Thousand Pesos)

Major Final Outputs (MFO)	Personnel Services	Maintenance & Other Operating Expenses	Capital Outlay	TOTAL
General Administration and Support (GAS)	67,854	15,042	-	82,896
Support to Operations (SO)	-	935	-	935
MFO 1 : Technical Advisory Services for Geologic and Geophysical Phenomena	56,018	71,721	84,539	212,278
MFO 2 : Disaster Preparedness and Risk Reduction Services	7,207	3,760	508	11,475
Local Funded Projects (LFP)	-	51,815	27,664	79,479
TOTAL	131,079	143,273	112,711	387,063

Summary of Human Resources

PHIVOLCS has a total of 237 authorized plantilla positions. During the year, sixteen employees were separated from PHIVOLCS while 16 new employees were hired. As of year-end, there are 210 filled up positions and 27 vacant positions. Apart from the regular positions, services of 32 staffs were contracted on a job order basis and 69 project staffs were hired for the different externally-funded projects implemented by PHIVOLCS.

The profile of PHIVOLCS human resources in terms of age, highest educational attainment and field of research work is shown in the table.

Classification	Male	Female	Total
By Sex	131	79	210
By Age Group			
20 years old and below			0
21-30	26	27	53
31-40	13	17	30
41-50	39	19	58
51-60	46	13	59
61-64	7	3	10
Total	131	79	210
By Educational Attainment			
With PhD	7	0	7
MA/MS	11	19	30
Post BA/BS	5		5
BA/BS	77	55	132
Post High School	24	5	29
High School and Below	7		7
Total	131	79	210
By Field of Research Work* (*for personnel doing R&D work)			
Natural Science	98	47	145
Engineering and Technology	9	2	11
Agricultural Science			0
Medical Science			0
Social Science	5	12	17
Humanities			0
Others			0
Total	112	61	173

PHIVOLCS Strategic Initiatives 2012-2016

1. National Volcano Monitoring and Warning
2. National Earthquake Monitoring and Information
3. National Tsunami Monitoring and Early Warning
4. Earthquake Hazards and Risk Assessment
5. Earthquake-generation Potential of Active Faults and Trenches
6. Volcanic Hazard and Risk Assessment
7. Eruption and Magmatic History of Volcanic Systems
8. Volcano, Earthquake and Tsunami Disaster Preparedness and Risk Reduction
9. Strategic Human Resource Management and Development (SHRMD)
10. Leadership Enhancement And Development (LEAD)
11. Strategic Performance Assessment and Development for Excellence (SPADE)

PHIVOLCS' Strategic Plan: The Safe Road Ahead Through Science & Technology

VISION

A leading global science and technology institution in helping develop communities safe from and resilient to volcanic eruptions, earthquakes, tsunamis and other related hazards.

MISSION

We provide timely and quality information and services for warning, disaster preparedness and mitigation. This we do through the development and application of technologies for the monitoring and accurate prediction of and determination of areas prone to volcanic eruptions, earthquakes, tsunamis and other related hazards, and capacity enhancement for comprehensive disaster risk reduction.

Societal Outcome: Communities have achieved resilience to volcanic eruptions, earthquakes, tsunamis, and other related hazards.

Enhanced safety of communities

1. Accurately predicted and simulated geological phenomena
2. Provided highly accurate and timely warning & information
3. Developed cost-effective monitoring & warning system
4. Empowered partners to lead in reducing risks from geologic hazards down to the barangay level
5. Enhanced collaboration with stakeholders

Highly responsive and competent organization

1. Highly prominent, globally recognized experts
2. Motivated, rewarded and competent staff
3. Effective and efficient systems, procedures, structures
4. Inspiring, dynamic leadership

Excellence

Innovation

Integrity

Service

People

PHIVOLCS OFFICIALS 2015

RENATO U. SOLIDUM, JR.

Director

BARTOLOME C. BAUTISTA

Deputy Director

MA. ANTONIA V. BORNAS

Chief, Volcano Monitoring and Eruption Prediction Division (VMEPD)

ISHMAEL C. NARAG

OIC, Seismological Observation and Earthquake Prediction Division (SOEPD)

ARTURO S. DAAG

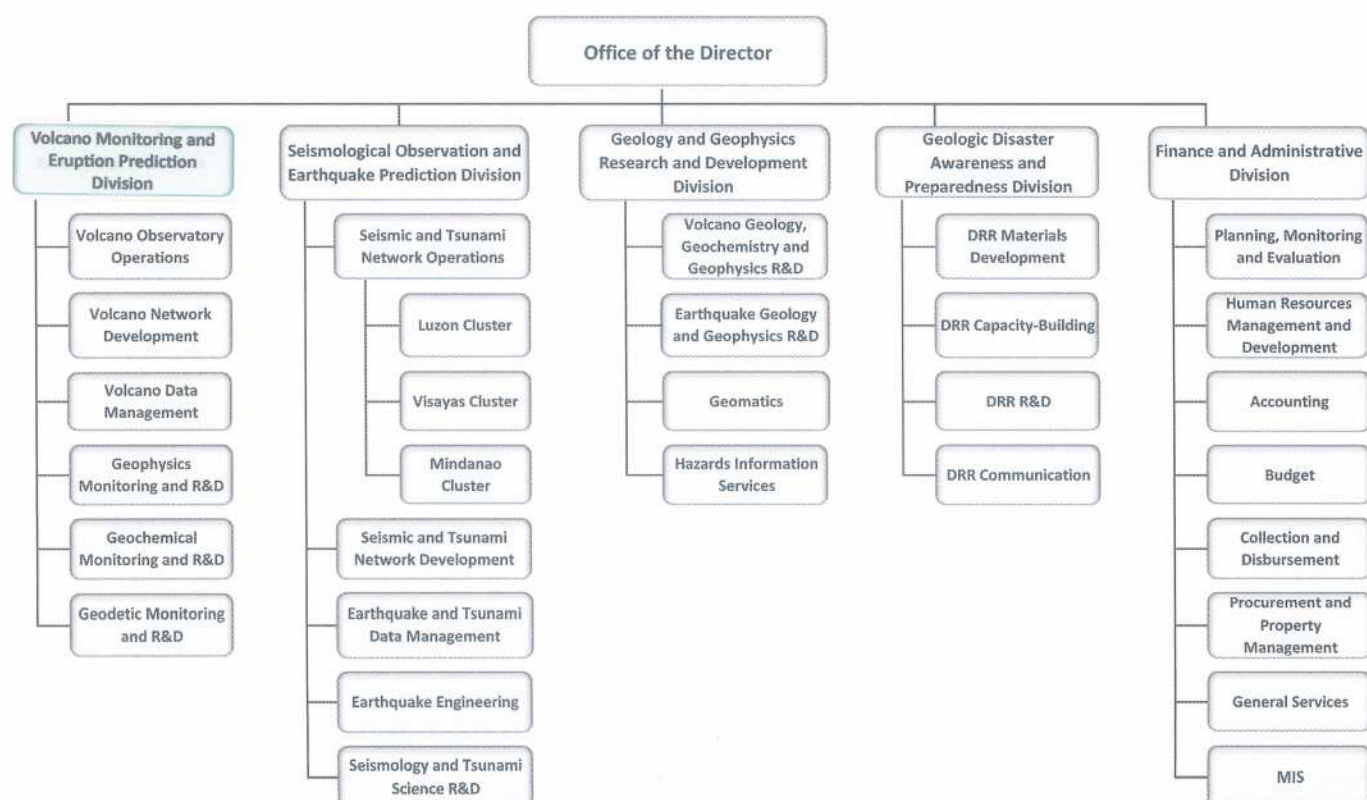
Chief, Geology and Geophysics Research and Development Division (GGRDD)

MA. MYLENE M. VILLEGAS

Chief, Geologic Disaster Awareness and Preparedness Division (GDAPD)

DELFIN C. GARCIA

OIC, Finance and Administrative Division (FAD)



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