



KINEMATICS

Advancement through Innovation

KINEMATICS

KINEMATICS EXPERIENCE & PROJECT
REFERENCES

www.kinematics.com

About

Kinematics

Since 1969 Kinematics has created products to monitor earthquakes, volcanoes, tsunamis, and nuclear non-proliferation. As a result, we have helped societies better understand these events on a global, regional, and local scale. Additionally, we create products for monitoring civil structures, bridges, dams, and nuclear power plants as such systems provide essential information about the structures' responses and informed decision-making for operational continuity to natural or man-induced seismicity.

In 1991 Kinematics transferred ownership to Oyo Corporation of Japan. Kinematics has developed into the undisputed world leader in cutting-edge seismic instrumentation and monitoring solutions. With the acquisition of Quanterra Inc. of Harvard, Massachusetts, in 1999, Metrozet of Los Angeles, California, in 2009, the strategic partnership with BRTT, a seismic software company in Boulder, Colorado, USA, and the 2021 established state-of-the-art sensor manufacturing and testing facility in Pfungen, Switzerland, the company continues with its strategic plan of creating a new generation of very broadband seismic instrumentation and networking solutions. Kinematics Inc. also operates offices in Chicago, IL, Switzerland, and Austria and has a joint operation with our parent company in Japan (Oyo SI) in support of regional markets and projects.



Kinematics' organizations pay careful attention to customer service and satisfaction. We have over 30 representatives serving customers throughout the world and a distinguished service division dedicated to fulfilling operation and maintenance contracts, installation as well as ongoing training and support.

Kinematics' importance in the world market is often a source of surprise for those who live in or visit Pasadena in Southern California. Few people are aware that this company produces many of the instruments that provide seismological data to scientists and supply engineers with valuable information enabling them to make buildings, dams, and bridges safer. Even fewer people know that Kinematics' instruments are used to monitor the seismic safety of many of the world's most famous structures, including New York's Statue of Liberty, San Francisco's Golden Gate Bridge, Egypt's Sphinx, Athens' Parthenon, India's Taj Mahal, and Dubai's Burj Khalifa. With NASA's InSight Mission, Kinematics' instrumentation reached Mars. The SEIS-SP component of the seismometer package uses Kinematics patented MEMS technology and electronics designed by Kinematics in collaboration with Imperial College and Oxford University in the UK. Also, in development is the Farside Seismic Suite for the JPL/NASA mission to the moon (launch date 2025).

Kinematics' manufacturing and design facilities in Southern California enable the company to take advantage of the unique opportunities of the region. Partnerships with leading higher education and scientific research institutions ensure that the company will remain at the forefront of technological innovation.

Kinematics' Quality Assurance Program is in full compliance with ISO9001:2008 standard.

Open Systems & Services

Divisions



Open Systems & Services (OSS) is a distinguished team of geoscience specialists, earthquake engineers, and information technologists within Kinemetrics who serve a diverse market that demands a truly multi-disciplinary approach towards achieving project objectives. Our comprehensive solutions reflect the creative project planning and long-term commitment required to deliver and maintain the most advanced systems and in compliance with the highest standards of science and technology.

The OSS Division brings unique perspectives to seismic and structural monitoring systems providing onsite and remote maintenance and operation services beyond Kinemetrics' original equipment manufacturer capability. The Open System & Services Division maintains its own data center for data quality control and state-of-health monitoring of Kinemetrics' sensor manufacturing activities, as well as, customer's seismic networks. An inventory of spare equipment adds to the readiness to replace equipment for scheduled and unscheduled deployments.

A vital asset is the Division's highly trained and experienced technicians. OSS teams have installed seismic instrumentation around the world and across the United States. Moreover, we recognize that data availability and quality are areas of continuous improvement. As the innovator in seismic data communications, Kinemetrics was the first to apply networking technology to data communications. Today, in many of our installations, network uptime and data return are in the 99+% range, a product of advanced network layout and superior maintenance.

Open Systems & Services

Divisions

IN-HOUSE SERVICES

- System Design:
 - Seismic & Strong-Motion Networks
 - Tsunami Warning Volcano Monitoring Structural Health Monitoring
 - Nuclear Power Plant (NPP) Monitoring
 - OBS GPS
- Factory Acceptance Test
- Custom & System Training
- Remote System Maintenance
- OSS Data Center for State-of-Health Monitoring Data Acquisition
- Data Processing (real-time & post-processing)
- Earthquake Engineering Services

FIELD SERVICES:

- System Installation:
 - Seismic & Strong-Motion Networks
 - Tsunami Warning
 - Volcano Monitoring
 - Structural Health Monitoring
 - OBS
 - GPS
 - NPP
- System Integration
- Onsite Acceptance Test
- Custom & System Training
- Station & System Maintenance
- Antelope Update Service
- Data Center Operation
- Site Selection
- Portable Deployments
- Data Collection
- Data Processing

OTHER SERVICES:

- GIS



OSS Mission Statement



Advancing Resilience of communities, businesses, and governments is the vision of the Open Systems & Services Division. We are committed to:

- Reducing casualties and financial loss due to disaster.
- Achieving more resilient and sustainable societies.
- Understanding our customers' needs and delivering added value.

We achieve our mission by providing customized and comprehensive systems, solutions, and support.

KINEMATRICS' PRESENCE

Kinematics' presence is not only limited to North America (Kinematics Inc., USA), Europe (Kinematics SA, Switzerland), and in Japan (Oyo SI). Beyond these physical locations, Kinematics has the benefit of the support of over 30 representatives and field-trained consultants throughout the world. We are capable of arriving at many places in less than 48hrs or supplying our equipment in less than 24hrs.

Key Personal Experience

When needed, Kinometrics' OSS utilizes Technical Staff from the Engineering Department's pools of KMI/Quanterra, as well as, from our consultants and permanent network maintenance crews in Algeria, Austria, Italy, Malaysia, Serbia, and UAE to meet project objectives.

NAME	POSITION	YEARS AT KINOMETRICS	TOTAL YEARS OF RELATED WORK
Mauricio Ciudad-Real, M.Sc.	President & CEO	26	32
Mathias Franke, Ph.D.	VP and Division Manager	26	31
Derek Skolnik, Ph.D., P.E.	Program Manager Earth-quake Engineering	13	18
Perry Liu, M.Sc.	Senior System Engineer	5	7
David Castleman	Services Manager	35	41
Rudy Diaz	Sr. Systems Engineer	40	40
Ruben Ortega	Sr. Systems Technician	14	34
Stefan Radman	Sr. ICT Engineer	10	34
Toufik Allili	Sr. Network Operator	11	18
Stepa Čačić	Field Engineer	4	34
Yarelis Chavez	Sr. Operation Coordinator	12	19
Mohamed Idrissi	Office Director Kinometrics SA, Switzerland	27	35
M. Khalid Saifullah, Ph.D.	Project Engineer	-	-
Facundo Sirri	Project Engineer	-	3
Andy Dich	Systems Technician	-	5

Kinematics Project

References

The table below lists recent main projects of the OSS Division that involve system design, integration, testing, and training. The **"yellow-highlighted"** projects are maintained and/or operated by the OSS Division.

PROJECT	LOCATION	OWNER	USD	YEAR	CLIENT CONTACT INFO
Seismic/Structural Monitoring & Engineering Services	Abu Dhabi, UAE	Abu Dhabi Municipality	\$31M	Since 2012	Irfan Ahmad, FirstSource Mussafah M43, Office 80, Mussafah Abu Dhabi, UAE
California Strong-Motion Instrument. Program (CSMIP)	76 Locations in California, USA	Sponsored by CGS	\$28M	2016 - 2028	Troy Reitz (CGS) 801 K Street, MS 13-35, Sacramento, CA 5814, USA
Italian National Strong-Motion Network	Italy	Dipartimento Protezione Civile	\$20M	Since 2006	Luisa Filippi Office III – Seismic & Volcanic Risk, Via Vitorchiano 4 - 00189 Roma
National Seismic Monitoring Network & Tsunami Warning	Oman	Sultan Qaboos University	\$5.5M	Since 2001	Dr. Issa El-Hussain Earthquake Monitoring Center, PO. Box 50 Al-Khoudh, Postal Code 123
Seismic Network Upgrade & Training	Indonesia	BKMG	\$5.1M	2019 - 2023	Y. Utomo, P.T. Len Industri Jl. Soekarno Hatta 442, Bandung 40254 Indonesia
Post-Earthquake Assessment System	Saudi Arabia	Energy Company	\$4.6M	2013 - 2020	Please contact us for more details. (Note: on hold due to Covid-19)
Seismic Network & Emergency Management	Dubai, UAE	Dubai Municipality	\$3.5M	Since 2006	Irfan Ahmad, FirstSource Mussafah M43, Office 80, Mussafah Abu Dhabi, UAE
CTBTO Instrument & Service Contract	Global	Sponsored by CTBTO	\$3M	Since 2018	Marian Jusko Vienna International Centre, PO. Box 1200 1400 Vienna, Austria
Passive Seismic Oil Field Monitoring	Saudi Arabia	Energy Company	\$2.9M	Since 2020	Please contact us for more details.
(5) 100m Borehole Monitoring Stations	Saudi Arabia	NRRC	\$2.5M	Since 2021	Khalid Alsheatn (NRRC) Digital City – Tower No. 1 Riyadh 12382-67, Saudi Arabia
Seismic Monitoring & Alert Network	Italy	Energy Company	\$600k	Since 2018	Please contact us for more details. (Note: on hold due to Covid-19)
Seismo-Acoustic Array & CRF	Amarillo, TX	Pantex, DOE	\$557k	2020 - 2021	James O. Thomas, CNS Pantex Plant Y-12 National Security Complex
LNG Plant	Australia	Energy Company	\$523k	2015 - 2019	Please contact us for more details.
Post-Earthquake Occupancy Resumption	San Francisco, CA, USA	Critical Financial Institution	\$420k	2007 - 2021	SGH Consultants, San Francisco, CA 94105

Noteworthy Projects with Kinometrics' Instrumentation

The lists below highlight some of the noteworthy structures and seismic networks that Kinometrics has supplied over the past 50 years.

Historical Monuments

- Giza Pyramids, Egypt
- Great Wall of China
- Hagia Sophia, Turkey
- Parthenon, Greece
- Statue of Liberty, USA
- Taj Mahal, India

Critical Civil Structures

- APEAS High-Risk Facilities, Saudi Arabia
- CFE Multiple Electricity Generating and Distribution Facilities, Mexico
- Los Angeles Emergency Operation Center
- Los Angeles Police Academy Retrofit
- Martin Luther King Trauma Center, California
- Multiple Government Buildings, Kuala Lumpur, Malaysia
- Multiple Superstructures, Abu Dhabi, UAE (in development)
- Naval Medical Centers, Seattle, San Diego
- San Francisco Civic Center
- Superconducting Gravimeter, Belgium
- University of California (Louis Factor Building), Los Angeles
- Veteran Affairs Hospital, Palo Alto
- Veteran Affairs Hospital, San Diego
- Caltrans Headquarters and Bay Area Emergency Operation Center
- Santa Maria Medical Center
- Saline Water Desalination Plants, Saudi Arabia

Nuclear Facilities (Over 100 projects worldwide)

- Diablo Canyon Nuclear Power Plant
- Duke Energy Shearon Harris Nuclear Plant - North Carolina, USA
- Centrales Nucleares Almaraz-Trillo Almaraz NPP, Spain
- Calvert Cliffs Nuclear Power Plant, LLC - CCNPP – CENG Calvert Cliffs NPP - Maryland, USA
- Indiana Michigan Power Company DC Cook NPP - Michigan, USA
- Tennessee Valley Authority Browns Ferry NPP - Tennessee, USA
- Entergy Vermont Yankee NGS - Vermont, USA
- LANS Los Alamos National Security - New Mexico, USA
- Washington TRU Solutions LLC WIPP Site - New Mexico, USA
- Florida Power & Light Co. Turkey Point NPP - Florida, USA
- Eletrobrás Termonuclear S/A ELETRONUCLEAR Angra NPP Unit 1 – Brazil
- Luminant Power Comanche Peak Steam Electric Station - Texas, USA
- First Energy Beaver Valley NPP - Pennsylvania, USA
- Nuclear Management Company LLC Prairie Island Nuclear Gen. Station - Minnesota, USA
- Florida Power & Light St. Lucie NPP - Florida, USA
- NextEra Energy Seabrook, LLC Seabrook Station Nuclear Plant - New Hampshire, USA
- Dominion Nuclear CT Milestone NPP Unit 3 - Connecticut, USA
- Georgia Power Vogtle NPP - Georgia, USA



Noteworthy Projects with Kinometrics' Instrumentation



Bridges & Dams

- Aswan Dam, Egypt
- Bakun Dam, Malaysia
- Campestre Bridge, Mexico
- Cape Girardeau Bridge, Missouri
- El Toro Dam, Costa Rica
- Golden Gate Bridge, California
- Hoover Dam, Nevada
- La Vueltoza Dam, Venezuela
- Marga-Marga Bridge, Chile
- Namahe Bridge, Republic of S. Korea
- Oakland Bay Bridge, California
- Pacoima Dam, California
- Rama IX Bridge, Thailand
- Vincent Thomas Bridge, California
- Alaskan Way Viaduct, Washington
- Blue Ridge Dam, TVA
- Murum Dam, Malaysia

(continued) Nuclear Facilities

- STP Nuclear Operating Company STP Electric Generating Station Texas, USA
- Korea Electric Power Corporation KORU NPP Units 3 & 4, South Korea
- Taiwan Power Corporation
- Lungmen NPP Units 1 & 2, Taiwan
- Nuclenor, S.A. Santa Maria de Garoña, Spain
- Canatom NPM Inc. / AECL Third Qinshan NPP Units 1 & 2, China
- Ringhals AG/Vattenfall Ringhals Nuclear Power Plant, Sweden
- Entergy Arkansas Nuclear One Plant - Arkansas, USA
- Taiwan Power Corporation Chinshan TPC-1 NPP Unit 2, Taiwan
- Alabama Power Company Farley Nuclear Plant - Alabama, USA
- Taiwan Power Corporation Chinshan TPC-1 NPP Unit 1, Taiwan
- Entergy Indian Point 3 NPP - New York, USA
- Knolls Atomic Power Laboratory KAPL - New York, USA
- Comision Federal de Electricidad Laguna Verde NPP Units 1 & 2, Mexico
- Constellation Energy Nine Mile Point Nuclear Station Unit 1 New York, USA
- Kozloduy NPP plc, Kozloduy Kozloduy NPP, Bulgaria
- Societatea Nationala Nuclearelectrica SA Cernavoda NPP Unit 1, Romania
- EDF - Electricité de France
- Project: Etna (Condor) Seismic Monitors for Nuclear Facilities, France
- Taiwan Power Corporation Chinshan TPC-1 NPP Unit 1, Taiwan
- EXELON GENERATION CO. LLC. Dresden NPP - Illinois, USA
- Duke Energy Brunswick NPP Unit 1 & 2 - North Carolina, USA
- Duke Energy Robinson NPP - South Carolina, USA
- Centrales Nucleares Almaraz-Trillo Trillo NPP – Spain
- Arizona Public Services Palo Verde NPP - Arizona, USA
- Rochester Gas and Electric Ginna Station - New York, USA
- S'TELL Diagnostic Ling Ao NPP Units 1 & 2, China
- OKG Aktiebolag, Sweden

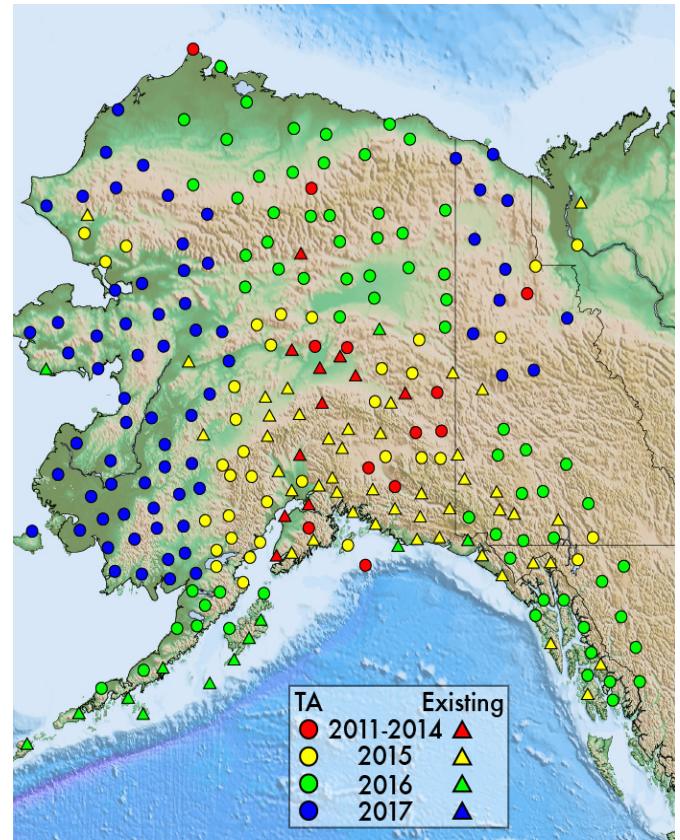
Iconic Buildings

- Atwood Building, Alaska
- Caltech Millikan Library, Pasadena
- Century Plaza Towers, Los Angeles
- Chevron Building, San Francisco
- Natural Resources Building, Olympia
- Pacific Park Plaza, Emeryville
- Transamerica Building, San Francisco
- Willis (formerly Sears) Tower, Chicago
- Burj Khalifa, UAE
- Dubai World Trade Center, UAE
- ADNEC "Leaning Tower of Abu Dhabi", UAE
- ADNOC Headquarters, UAE

Noteworthy Projects with Kinematics' Instrumentation

Regional/National Seismic Networks

- Alaska Regional Network, Alaska
- Algerian National Network Algeria
- Anchorage Strong Motion Network, Alaska
- ANZA Regional Network, California
- Asian Disaster Preparedness Center, Thailand
- Austrian National Network, Austria
- Broadband Array in Taiwan for Seismology, Taiwan
- Caltech Regional Seismic Network, Pasadena, California
- Canadian National Seismic Network, Western Province, Canada
- CGS California Strong Motion Instrumentation Program
- Czech Seismic Network, Czech Republic
- Dubai Region Network, Dubai
- Dubai Seismological Network, UAE
- Earthscope, Plate Boundary Observatory
- Borehole Seismic Network, Western US
- Ebre Observatory regional seismic network, Spain (in development)
- Friuli Veneto seismic and accelerometric Network, Italy
- Hong Kong Seismograph Network, China
- Indonesian Tsunami Warning (German contribution), Indonesia
- Italian Strong Motion Network, Italy
- King Saud University Network, Saudi Arabia
- Kirghiz Seismic Network, Kyrgyzstan
- Korea National Seismography Network, Korea
- Kuwait National Seismic Network, Kuwait
- Malaysian National Seismic Network, Malaysia
- Micro Seismic Monitoring System of Northern Areas, Pakistan
- Morocco Seismic Network, Morocco
- National Seismic Network, Azerbaijan
- NEPTUNE/POLARIS Canada
- Netherlands Seismic Network, Netherlands
- North-East Italy Broadband Network, Italy
- Observatorio Vulcanológico y Sismológico de Costa Rica (in development)
- Oman National Network, Oman
- PASSCAL Instrument Center(s), USA
- Puerto Rico Seismic Network (PRSN) & Puerto Rico Strong Motion Program (PRSMP)
- Red Acelerografica Nacional de la Comision Federal de Electricidad (CFE), Mexico
- Research Center of Astronomy, Astrophysics & Geophysics (CRAAG), Algeria
- Romanian Seismic Network, Romania
- Singapore Seismological Network, Singapore
- Slovenia Seismic Network
- SudTirolo seismic network, Italy
- UC Santa Barbara Engineering Seismology Network, California
- University of California Berkeley Seismic Network
- USArray Transportable Array, USA
- Western Great Basin/Eastern Sierra Nevada, Nevada



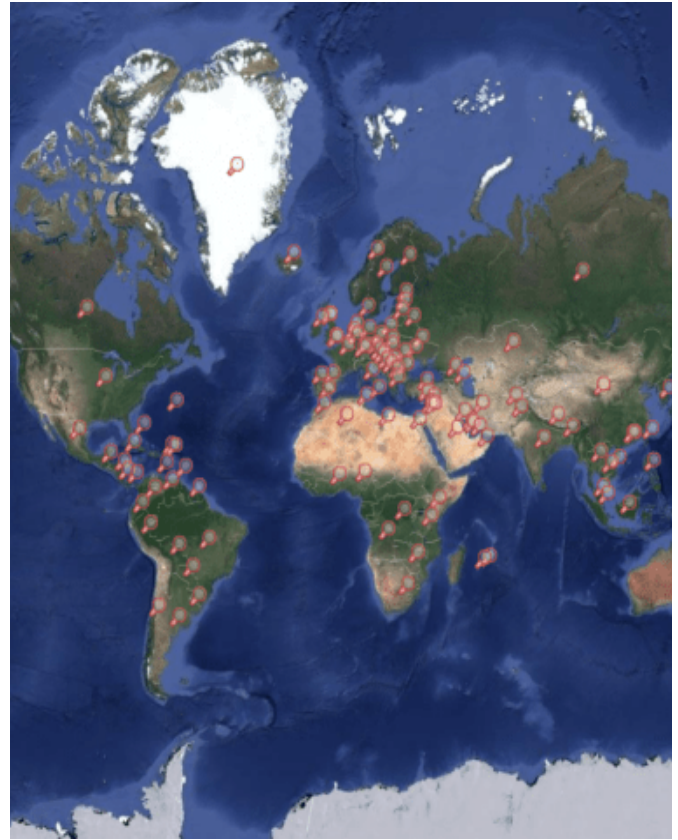
Noteworthy Projects with Kinometrics' Instrumentation

Global/Regional Seismic Networks

- IRIS China Digital Seismic Network (part of Global Seismic Network)
- IRIS IDA Network (part of Global Seismic Network)
- IRIS USGS Network (part of Global Seismic Network)
- GeoScope, France Network (part of Global Seismic Network)
- GeoFone, Germany (part of Global Seismic Network)

Global Data Centers

- AFTAC Data Center, USA
- IRIS Data Center, USA
- ORFEUS Data Center, Netherlands
- MedNet, Italy (part of Global Seismic Network)
- Pacific Tsunami Warning Seismic System, Hawaii
- Caribbean Tsunami Warning Seismic System, Puerto Rico
- Australian Tsunami Warning Seismic System, Australia
- US Air Force Nuclear Non Proliferation Array(s), USA



CONTACT: Through its Open Systems & Services Division, Kinometrics Inc. offers a wide range of service programs to complement its many products. If you have a need for support, require training courses, system developments, engineering, and operational services, please contact Kinometrics at sales@kmi.com or OSS at oss@kmi.com.



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