Kinemetrics, Inc.

Asian Antelope User Group

June 23, 2013

Brisbane, Australia

By: Outhay Viengkhou

BRTT metrozet QUANTERRA Streckeisen KINEMETRICS

- Our Background
- Who We are
- New development

BRTT metrozet QUANTERRA Streckeisen KINEMETRICS

Our Background:

Scientific Instrumentation, Application, Manufacturing, and Service company

- Founded in 1969
- Headquarters, Pasadena, California - USA
- Headquarters, Quanterra, Harvard, Massachusetts – USA
- Headquarters, Metrozet, Los Angeles, California - USA
- Headquarters, BRTT, Boulder, Colorado - USA
- Headquarters, Streckeisen, Pfungen – Switzerland
- Office in Switzerland, Japan and Abu Dhabi
- Training Center: Vienna, Austria

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Our Background cont.:

- Network of over 60 representatives worldwide
- Owned by OYO Corp. Japan, $500M/Year Sales
- 55+ Patents owned or applied by KMI & its sister group companies
- More than 100,000 instruments installed worldwide
- Leading Seismic Network and Service provider
- Truly a Global Company….

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Who We Are:

Kinemetrics, Inc.

- Large corporation with substantial financial resources
- World leader in the manufacture of strong motion seismic sensors and dataloggers
- Lots of experience in design, installation and supporting Open-Architecture System (OAS) networks for earthquake monitoring (i.e. seismic free field, structure, GPS and metrological) around the world
- Worldwide experience in network operation
- Fiscally strong with deep support and well developed corporate infrastructure

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Who We Are Cont.:

Quanterra, Inc. – Data Acquisition Company

- Designed **world's 1st** true 24-bit seismic data acquisition system in early 80's
- Designed **world's 1st** ultra low power 24-bit seismic data acquisition system in early 00's
- Designed **world's 1st** true 26-bit seismic data acquisition system in 2005. Still the **world's best performance** seismic data acquisition system

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Who We Are Cont.:

Streckeisen/Switzerland—Sensor Company

- Designed **world's 1st** digital very broadband seismograph in early 80'
- STS 2.5 **world's best performance** Broad-Band (BB) seismometer
- Excellent worldwide reputation in the design and manufacture of Very Broad-Band (VBB) and Broad-Band seismometer (BB) for weak motion seismology

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Who We Are Cont.:

Metrozet/USA– "The Sensor Company

- New company, established in late 2005'; principals worked for NASA (JPL) on the space missions seismometers, Schlumberger…
- With NSF provided funding, successfully designed **world's 2nd** Very Broadband seismometer (VBB) in early in 2010': Improved the **next** generation of original Streckeisen STS-1 design, the M2166-VBB. Currently, the **world's best performance** seismometer
- PBB-200S
- STS-5A

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Who We Are Cont.:

Boulder Real Time Technologies/USA—Software Company

- **World's largest** commercial seismic network software provider
- Designed one of the world's first digital seismic networks (UCSD-Anza, early 80's)
- Lots of software engineering experience, modern digital communication, information system experience, of operational experience

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New development

- **Structural Health Monitoring**
- **Seismic Risk Assessment**

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Sensor Types

- **Class A:** Streckeisen STS-1, Metroze M-2166, Geotech KS 54000
- **Class B:** Streckeisen: STS-2, STS-2.5 & STS-5A, Guralp CMG-3T, Nanometrics Trillium 240
- **Class C:** Metrozet PBB-200S, Trillium 120, Reftek 151-120
- **Class D:** CMG-40, KS-2000,Reftek 151-60
- **Class F:** Trillium Compact, CMG-6T..

Price/Performance ≠ Reliability

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New development
M2166-VBB class A sensor

- **Lowest noise broadband sesnor, 360 sec to 15 Hz**
- **Non-Galperin Architecture**
- **Based on Wielandt/ASL "Warpless Baseplate"**
- **Self npise below NLNM >1000 sec**
- **2400 V-sec/m**

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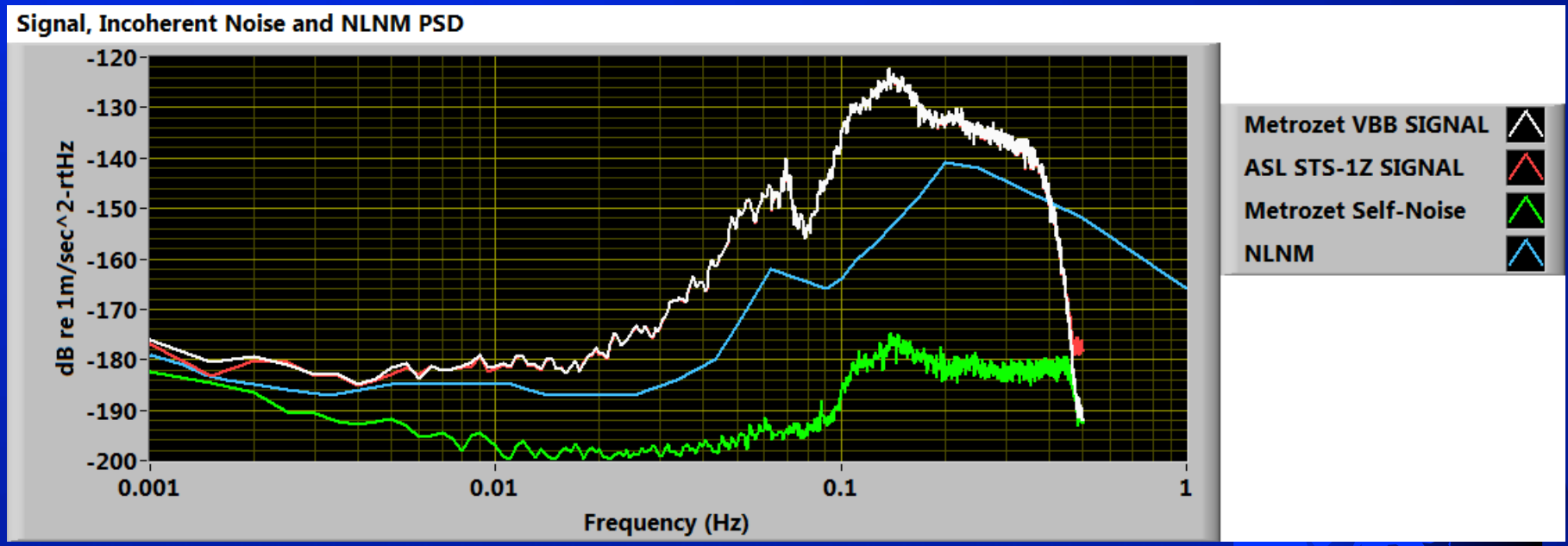
New development
M2166-VBB Self Noise Measurements

Signal and Noise Power Spectral Densities measured at ASL.



World's Best Performance Sensor!

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New development
PBB-200S class C sensor

- **Bandwidth: 120 sec to 50Hz**
- **Self noise: below NLNM from 40 sec to 8 Hz**
- **50 g shock tolerance**

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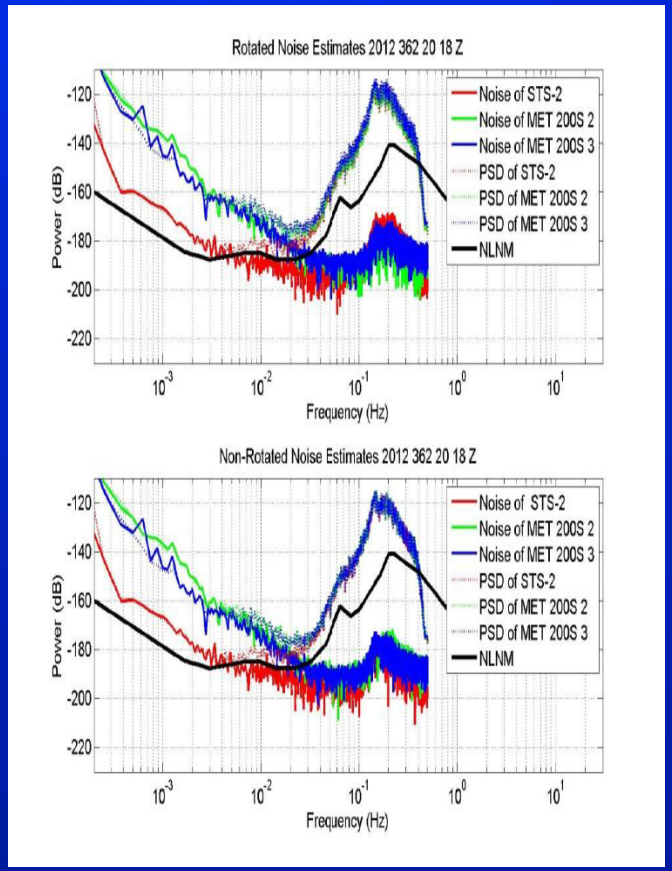
New development
PBB-200S class C sensor



USGS Albuquerque Seismological Laboratory Report Dated Feb 11, 2013

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New development
PBB-200S class C sensor

INDUSTRIAL 2012

Metrozet PBB-200S Seismometer, 2011-2012

GOOD DESIGN 2012
AWARD PRODUCT DESIGNS AND GRAPHICS AND PACKAGING

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New development
STS-5A class B sensor

STS-5A

- **STS-2.5 borehole**
- **Gimbal with +/- 5° range**
- **Power Consumption: 0.45w**
- **Housing: IP69**
- **Size: 5.75” D x 22.5” L**

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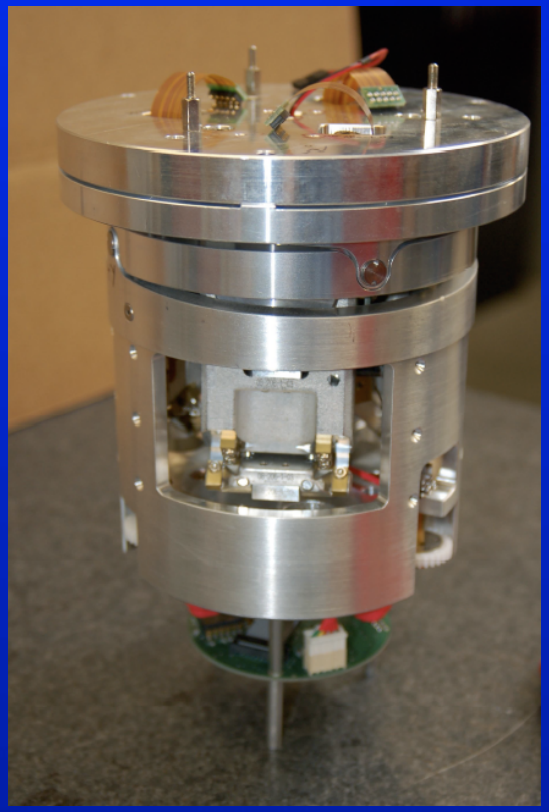
New development
STS-5A class B sensor



Gimbal system w/ sensor deck

Full [ackage, upside down, w/bottomcap

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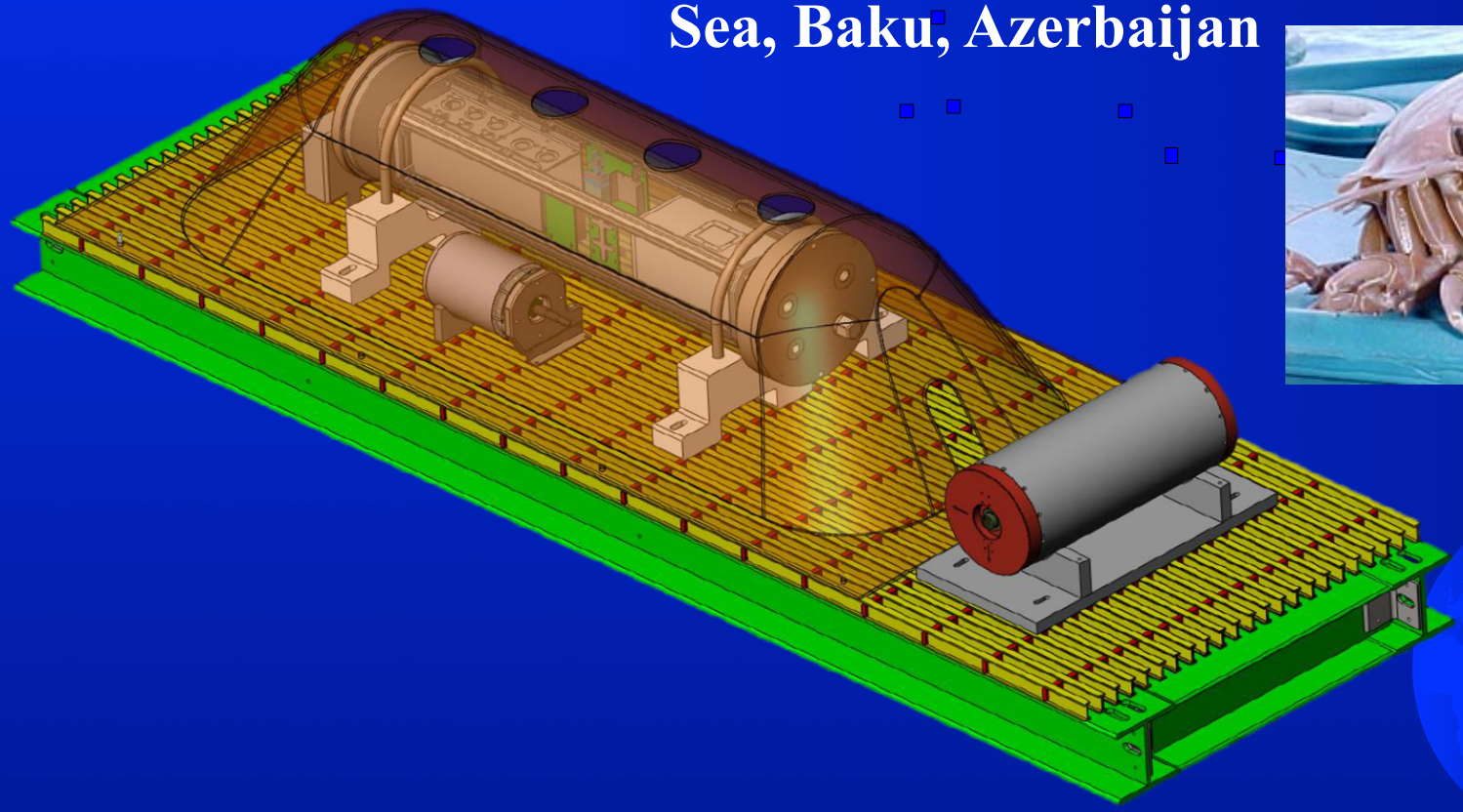
New development
STS-5A class B sensor

ISOPOD OBS in the Caspian Sea, Baku, Azerbaijan



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Thank You

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