IRIS/PASSCAL Instrument Center User Workshop

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IRIS PASSCAL

IRIS/PASSCAL Instrument Center User Workshop

MORNING SESSION
8:00-8:45 Borrowing PASSCAL equipment: Policies, obligations, and procedures + Scheduling

8:25-8:45 Choosing the right equipment: An introduction to the PIC inventory.

9:25 -10:00 Field Procedures (vaults)
Break (10:00 - 10:20)

10:30 - 11:00 Planning a PASSCAL experiment (Budgeting time, money and personnel)

11:00 - 11:20 Shipping

11:25 - 12:00 Data Policy, submission of data and tools

LUNCH BREAK (12:00 - 13-00)

AFTERNOON SESSION

13:00 - 17:00 Hands on- Familiarization with equipment

Borrowing PASSCAL Equipment

- What is PASSCAL?
- Instrument use policy
- Use agreement.
- Submitting an instrument request
- Scheduling

IRIS PASSCAL

The PASSCAL Mission

… to provide users with state-of-the-art low-power portable seismic instrumentation and to deliver basic field expertise and data management tools in support of portable array seismic experiments worldwide.

IRIS PASSCAL

Programs

Flexible Array (Earthscope funded)

- United States
- Provides some construction materials
- Archives data

PASSCAL (Everything else)

- Anywhere

Polar

- Arctic and Antarctic
- By special arrangement

Rapid Array Mobilization Program (RAMP)

- Aftershock studies
- Ten stations with accelerometers

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Services

- Instruments with all cables and ancillary equipment
- Software for working with the instruments and data
- Training at PASSCAL and in the field
- Support of field work, both on site and remotely
- Assistance with data archiving
- Assistance with experiment planning
- Assistance with shipping

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Instrument Use Policy

http://www.passcal.nmt.edu/content/general-information/policy/instrument-use-policy

- Available to any research or educational institution to use for research purposes
- Provided, without charge
- Rely on PIs to conform to a limited number of rules and conditions

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PI Commitments

- Responsible for all shipping arrangements, costs and duties
- All data sets will be made available to the IRIS Data Management Center (PASSCAL Data Delivery Policy)
- Equipment is returned to PASSCAL on the date specified
- Attend an experiment planning and training session at PASSCAL
- Acknowledgment - In any publications or reports
- Sign instrument use agreement

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Scheduling

- The goal is to optimize the use of the instruments
- Only projects with established funding will be put on the schedule
  - Priority is based on the date and source of funding
    1. Funded by the Earth Sciences Division of NSF or by ONRE of the DOE
    2. Funded by other divisions of NSF
    3. Funded by other US government agencies
    4. Funded by other programs.
- Flexibility will increase your chances
- Experiments that need to be rescheduled go to the back of the line

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Instrument Request

- Register as a principal investigator
- Complete the instrument request form
  1. A short and long experiment name
  2. A short description of the experiment to be conducted
  3. The location of the experiment (latitude – longitude)
  4. Dates that the equipment will ship from and be returned to PASSCAL
  5. The types and number of pieces of equipment requested for the experiment;
  6. An estimate of the amount of data to be gathered and archived;
  7. A notification of any special support that may be required;
  8. The name of the funding agency and status of the funding support
  9. Contact information for the designated contact person for this experiment.
- Work with PASSCAL staff to schedule the experiment

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Field Procedures

Types of experiments

- Active Source (Short period sensors)
  - One and/or three component sensors
  - Short duration 1-6 weeks
- Passive source (Broadband sensors)
  - Three component recorder
  - Long duration 1-3 years

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Active Source Experiments

- Permitting
- Number of stations and spacing
- Survey requirements
- Headquarters
- Deployment
- Power

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Active Source Experiments

- Permitting
  - Shots
  - Stations

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Active Source Experiments

- Permitting
- Number of stations and spacing
  - 100 to 2700 stations
  - 100m to 10km spacing

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Close spacing

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Active Source Experiments

- Permitting
- Number of stations and spacing
- Survey requirements
  - Depends on science objectives

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Active Source Experiments

- Permitting
- Number of stations and spacing
- Survey Requirements
- Headquarters
  - Space for programming and storage
  - Access to move boxes in and out
  - Power

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Headquarters

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Active Source Experiments

- Permitting
- Number of stations and spacing
- Survey requirements
- Headquarters
- Deployment

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Texan Deployment

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RT130 Deployment

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Active Source Experiments

- Permitting
- Number of stations and spacing
- Survey requirements
- Headquarters
- Deployment
- Power
  - Texans 2 D-cells (~ 5 days)
  - RT130 12 volt battery (up to 2 weeks)

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Passive Source

- Power
- Site requirements
- Vault construction
- Servicing

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Passive Source

- Power
  - AC Power
  - Solar Power

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Passive Source

- Power
- Site requirements
  - Security
    - Theft and vandalism
    - Environmental

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Flooding

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Passive Source

- Power
- Site requirements
  - Security
  - Space
    - Sensor vault, recorder box, solar panel

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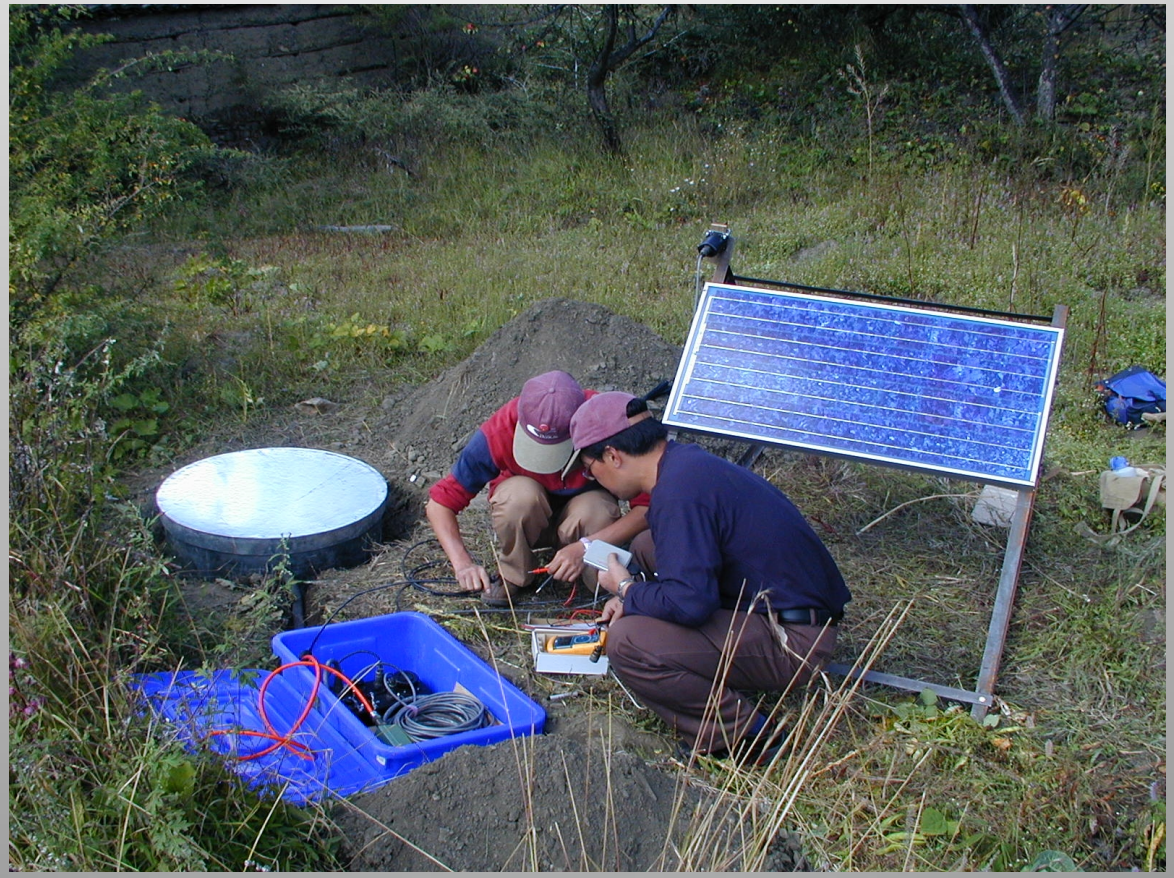
Broadband Station



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Passive Source

- Power
- Site requirements
  - Security
  - Space
  - Noise
    - Roads
    - Trees
    - Power line
    - Machinery
    - People and animals

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Passive Source

- Power
- Site requirements
  - Security
  - Space
  - Noise
  - Sky view for GPS
  - Sun exposure for solar

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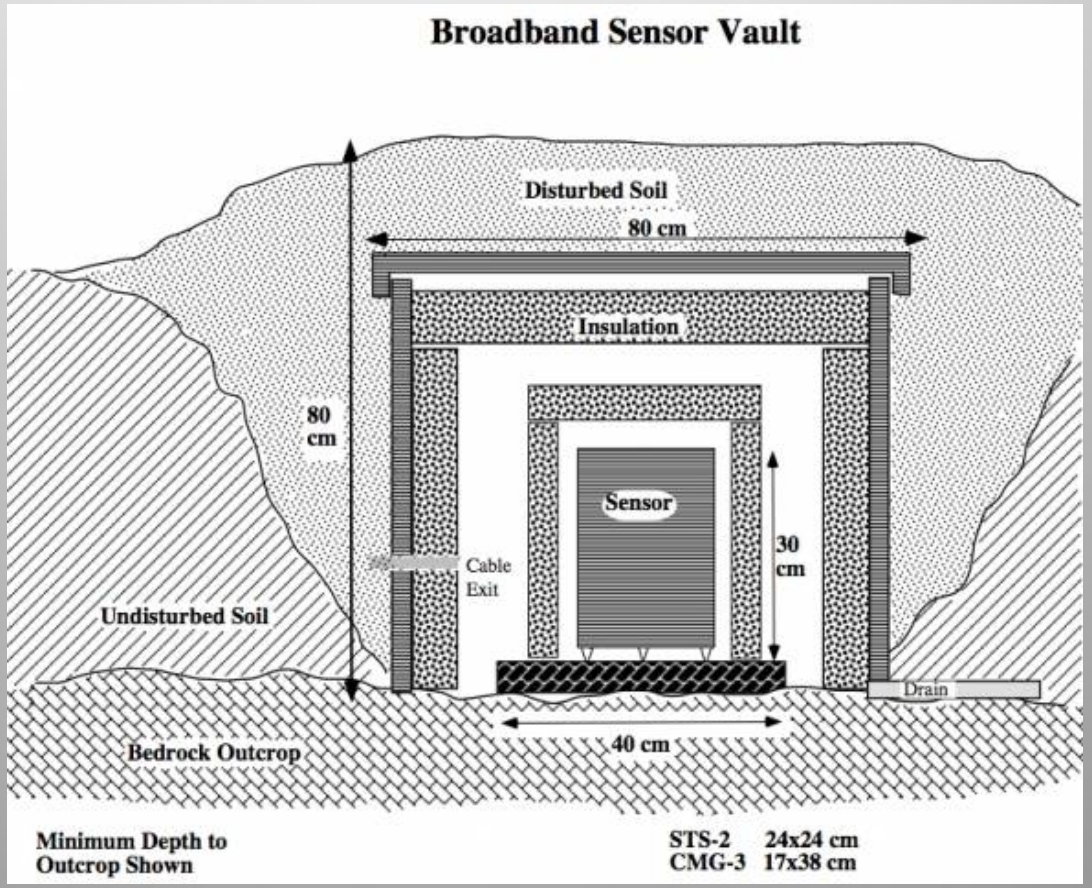
Typical Vault Construction



Passive Source

- Power
- Site requirements
- Vault construction
  - Depth – Deeper is better
    - Temperature stability and coupling

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Passive Source

- Power
- Site requirements
- Vault construction
  - Depth – Deeper is better
    - Temperature stability and coupling
  - Drainage

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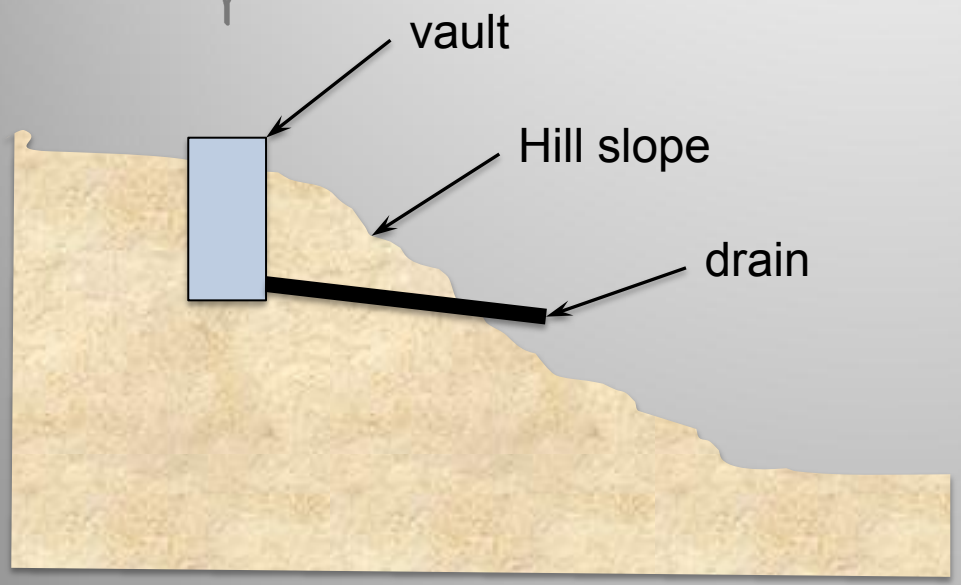
Drainage



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Passive Source

- Power
- Site requirements
- Vault construction
  - Depth – Deeper is better
    - Temperature stability and coupling
  - Drainage
  - Construction
    - Enclosure
      - Barrel or box

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Enclosure

Foam box

Barrel

Passive Source

- Power
- Site requirements
- Vault construction
  - Depth – Deeper is better
    - Temperature stability and coupling
  - Drainage
  - Construction
    - Enclosure
      - Barrel or box
    - Pad
      - Isolated or coupled

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Pads

Coupled

Isolated

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Passive Source

- Power
- Site requirements
- Vault construction
  - Depth – Deeper is better
    - Temperature stability and coupling
  - Drainage
  - Construction
    - Enclosure
      - Barrel or box
    - Pad
      - Isolated or coupled
    - Insulation

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Passive Source

- Power
- Site requirements
- Vault construction
- Servicing
  - Every 3 to 6 months
  - Station maintenance
  - Download and review data

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