



# An introduction to the PASSCAL Inventory



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## Instrument Pools at PIC

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- PASSCAL: Passive & active source
- Flexible Array / Earthscope: Passive & active source
- Polar: Passive & active source
- RAMP: Aftershocks



# PASSCAL Instrument Pool

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- Domestic or international
- No funding agency restrictions



## Flexible Array (FA) Instrument Pool

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- Domestic
- Earthscope funded
- Exceptions by case



## Polar Instrument Pool

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- Instrumentation designed and tested for cold, harsh environments
- Cold station deployment strategies





## RAMP Instrument Pool

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- Rapid Array Mobilization Program
- Domestic and international
- Short time table for aftershocks & volcanic eruption
- 10 6-channel stations: strong motion & weak motion per station

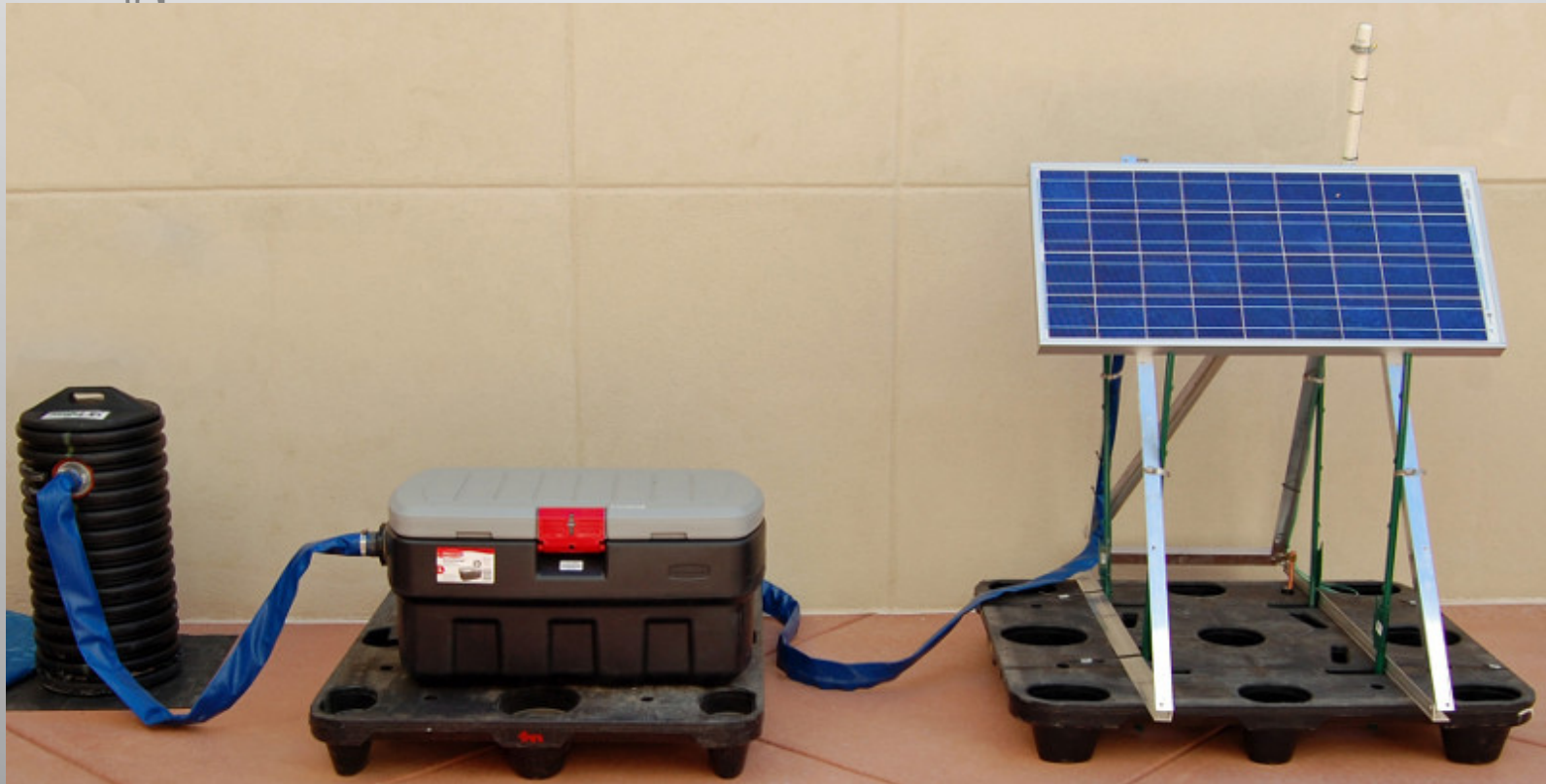


## Experiment Types Supported

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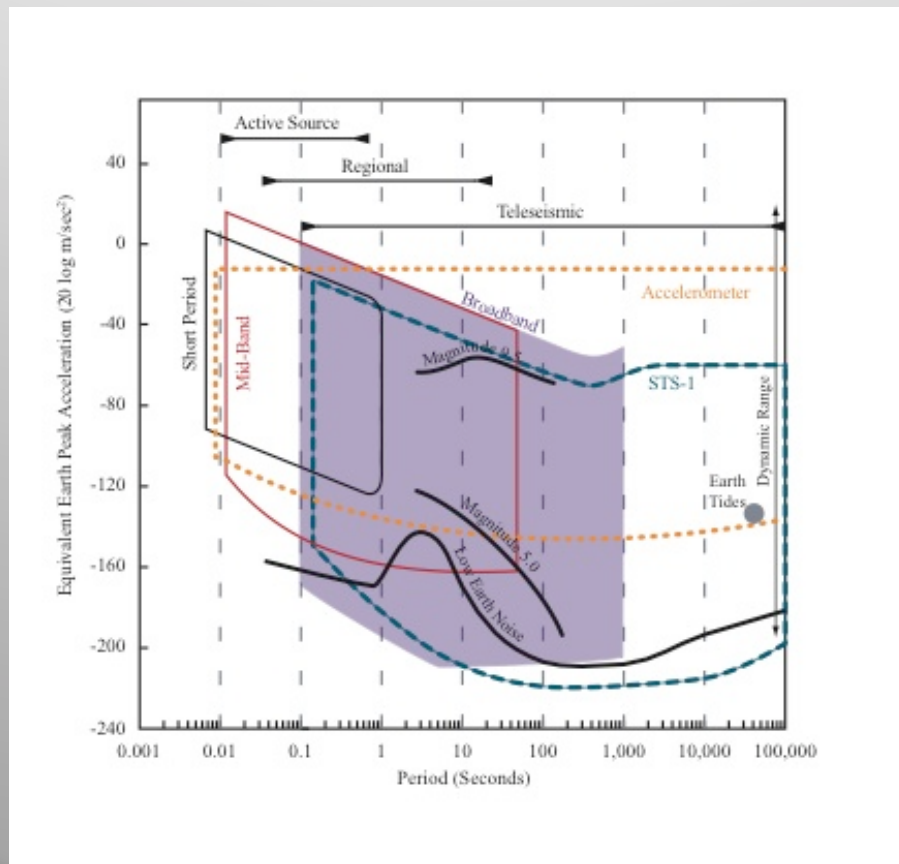
- **Passive source:**
  - Broadband & intermediate period seismometers
  - 3-Channel DAS
- **Active source:**
  - High frequency geophones
  - DAS:
    - 1-Channel
    - Multi-channel system with cable

# Passive Source Experiments





Sensor	Manufacturer	Power	Corner Frequency	Damping	Sensitivity	Poles & Zeros
STS-2	Streckeisen	30ma @ 12V	120s	.707	1500 V/m/s	Varies
CMG-3T	Guralp	70ma @ 12V	120s	.707	1500 V/m/s	5 Poles, 2 zeros
CMG-ESP	Guralp	70ma @ 12V	30s	.707	2000 V/m/s	5 Poles, 2 zeros
CMG-40T	Guralp	50ma @ 12V	30s	.707	800 V/m/s	5 Poles, 2 zeros
CMG-40T1	Guralp	50ma @ 12V	1Hz	.707	2000 V/m/s	5 Poles, 2 zeros
T-240	Trillium	54ma @ 12V	240s	.707	1200 V/m/s	5 Poles, 2 zeros
T-120	Guralp	54ma @ 12V	120s	.707	1200 V/m/s	5 Poles, 2 zeros
T-40	Guralp	46ma@ 12V	40s	.707	1500 V/m/s	5 Poles, 2 zeros





## Passive Source Digitizers

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### 2 Models:

RT-130

Q330

### Similar

- 3-Channel, 24-bit A/D
- Low power <1W
- Rugged
  - Water resistant
  - Military spec connectors
- 50% extra local storage available
- Resume recording after power loss



## Reftek RT-130

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- Compact flash local storage (High elevation)
  - 8GB Max
- Program & service with Handheld
- 1-1000 SPS
- RAMP PASSCAL, & FA Pools
- Ref Format
  - Conversion to MSEED
- Status LCD
- Simple
- Light weight



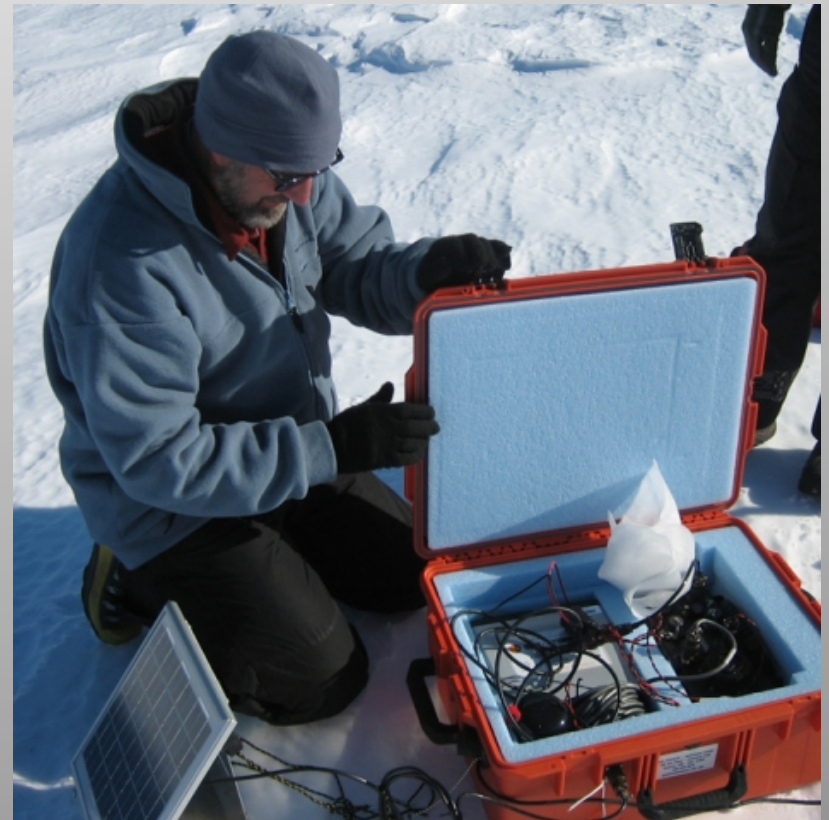
## Quanterra Q330

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- “Baler” local storage
  - Mechanical disk
  - 20GB Max
- Requires Laptop to program
  - Handheld to clone and service
- 1-500 SPS
- Status LEDs
- Heavy
- Complicated / Powerful
- Experienced user to program (PIC)
- Polar, PASSCAL pools

## Quick Deploy Box

- Fast deployment
- 10 W Solar panel
- Same shipping and deployment box
- For shorter passive or active source



# Active Source DAS



- Multi-channel cable system

- RT-125A







## Multi-channel Cabled Systems

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- Geode
  - 24-channel
  - Chainable
  - Laptop needed for operation, provided
  - Relative time from trigger
  - 120m cable w/ 5m spacing
- Stratavisor
  - 60-channel
  - Chainable w/ Geodes
  - Relative time from trigger
  - A variety of cables





## Reftek RT-125A

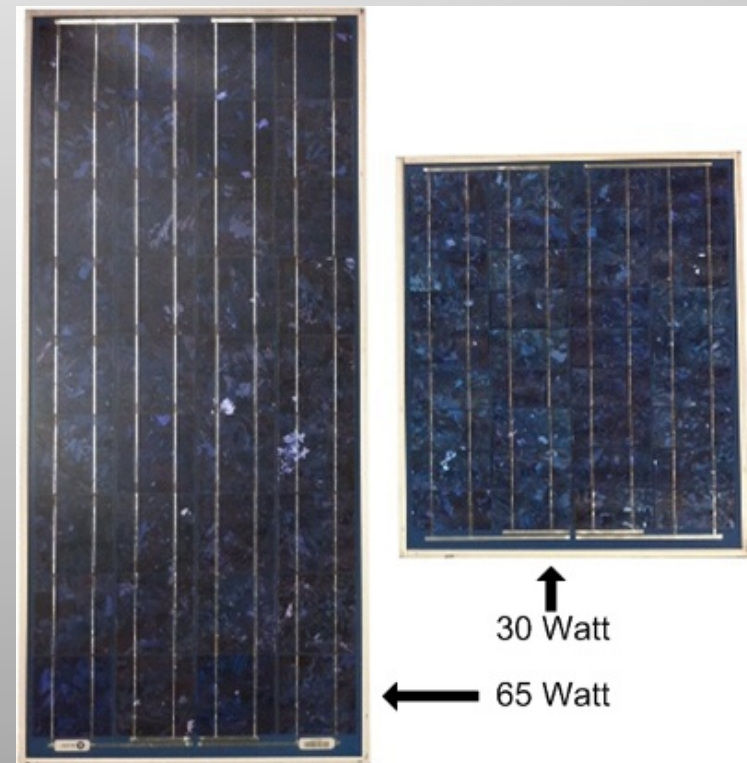
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- 1-channel, 24-bit
- Upgraded from 125 model
  - USB 2.0, faster offload time
- Absolute time of start and end
- 2 D-cell batteries
- Programming
  - Requires expertise
  - Space
- TRD format requires conversion

# Power Sources

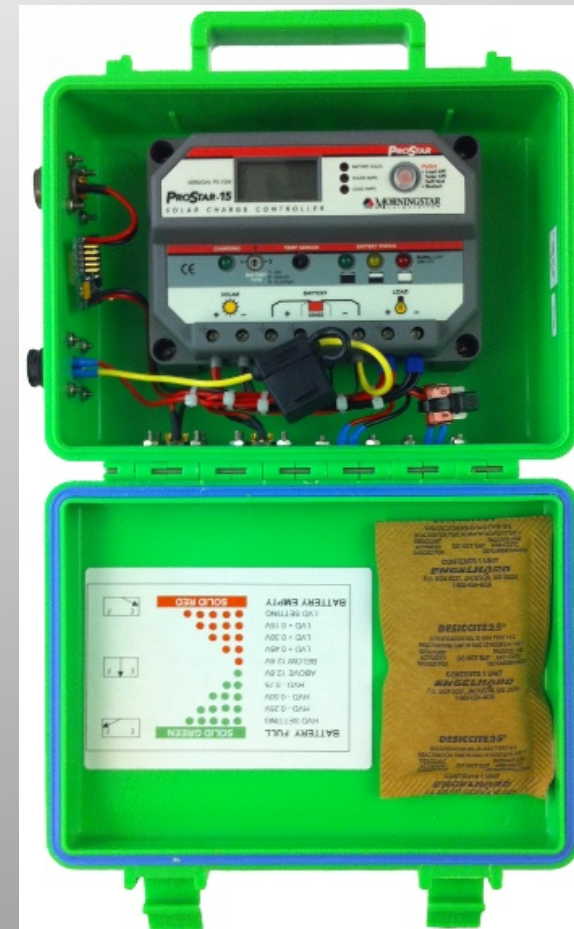


- A/C power supplies
- PV
  - 65 & 30 W
  - Mounting hardware



# Power Boxes

- Connect PV, batteries, and load
- Maintain health of batteries
- Protect connected instrumentation





## Ancillary Equipment

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- Provided
  - Laptops
  - Cables
  - FA & POLAR: Station & Vault enclosures
- PI responsible
  - Compass, handheld GPS, tools
  - Vault materials
  - Batteries
  - Station enclosures