Valencia Sands Information

1. Sands have been sieved and washed, sorted using micro-splitter.

2. VC-1 through VC-16 are all sieved for fine (250 μm) to very fine (69 μm) sand. The fine to very fine fraction is chosen following the suggestion of Mahaney (2002) that this fraction should provide a good sampling of the mineralogy of a sand, potentially using up to several hundred grains on a stub. All of these sands are available to use at FCAEM. All sands also have links to Gigapan macro images (below) of the whole mineral sand. Gigapan sand images are 9 cm across.

3. Sands VC-35 through VC-45 are sorted sands including only quartz grains between 250 μm and 2 mm. These are from some of the same sands as already noted above. (Not included if not a quartz sand.) All of these sands are available to use at FCAEM.

4. Locations used for team projects, as they all have a multi-mineral sand sample (composition: provenance) and a quartz sand sample (texture: depositional environment).

* Ophir Beach, OR.
* Punta Uva, Costa Rica
* Cache la Poudre River, CO.
* Rio Grande Rift, NM. Not yet included, to be added after collected in July, 2017.
* Montserrat, British West Indies
* Block Mountain, MT.
* St. Mary’s Glacier, CO.
* Bell’s Beach, Australia
* Lake Ontario, Canada.

5. In process: samples from the above locations of multi-minerals excluding the quartz. This should increase the efficiency of determining elemental compositions using the EDS.

For the following sands (VC1 -1 throughtVC-16), here is the link to the journal article used asthe quartz textures reference:

Vos, K., Vandenberghe, N., and Elsena, J., 2014, Surface textural analysis of quartz grains by scanning electron microscopy (SEM): From sample preparation to environmental interpretation. Earth-Science Reviews, v. 128, p. 93–104.

<https://www.researchgate.net/publication/259086698_Surface_textural_analysis_of_quartz_grains_by_scanning_electron_microscopy_SEM_From_sample_preparation_to_environmental_interpretation>

**Ophir Beach, OR.**

VC-1: Lithic sand from Ophir Beach, Ophir, Oregon. Collected by M. Beck 5/29/2006.

VC-35: Ophir Beach, OR. Quartz fraction only.

Gigapan for VC-1: Sand from Ophir Beach, Oregon: <http://gigapan.com/gigapans/200363>

**Punta Uva, Costa Rica**

VC-2: Lithic sand from Punta Uva, Puerto Viejo, Limon, Costa Rica. Collected 7/96.

VC-37: Punta Uva, Costa Rica. Quartz fraction only.

Gigapan for VC-2: Beach sand from Punta Uva, Puerto Viejo, Limon, Costa Rica: <http://gigapan.com/gigapans/200390>

**Washington Oaks Garden State Park, FL.**

VC-3: Shelly quartz sand from Washington Oaks Garden State Park dune area, south of Marineland, Flagler County, Florida. Collected 12/12/1987.

VC-36: Washington Oak Gardens State Park, FL. Quartz fraction only.

Gigapan for VC-3: Beach sand from Washington Oaks Garden State Park, Flagler County, Florida: <http://gigapan.com/gigapans/200418>

**Nassau, Bahamas**

VC-4: Oolitic sand from Nassau, Bahamas.

Gigapan for VC-4: Sand from the Bahamas: <http://gigapan.com/gigapans/ae890465f5c20ee9844d43a00fff73b2>

**Cache la Poudre River, CO.**

VC-5: Lithic sand from the stream bed of the Cache la Poudre River at the Poudre Learning Center west of Greeley, CO. Collected by Mary Beck on 9/30/16.

VC-45: Cache la Poudre River, CO, river bed sands.

Gigapan for VC-5: Sand from the Cache la Poudre River in Colorado: <http://gigapan.com/gigapans/200480>

**Rio Grande Rift, NM.**

VC-6: Rio Grande Rift sand. Not yet included, to be added after collected in July, 2017.

VC-46: Rio Grande Rift, NM. Not yet included, to be added after collected in July, 2017.

Gigapan for VC-6: Sand from Rio Grande Rift. Not yet included, to be added after collected in July, 2017:

**Montserrat, British West Indies**

VC-7: Beach sand from mouth of Ferry Ghant, north of Brades, Montserrat, British West Indies. Collected by Mary Beck, 3/2013.

VC-38: Ferry Ghant, Montserrat, BWI. Quartz fraction only.

Gigapan for VC-7: Beach sand from Montserrat, British West Indies: <http://gigapan.com/gigapans/200506>

**Puna Coast, HI.**

 VC-8: Basalt sand from Puna Coast (Trail), Big Island of Hawaii. Collected from a new volcanic beach, 8/2001.

Gigapan for VC-8: Beach sand from the Puna Coast, Big Island, Hawaii: <http://gigapan.com/gigapans/200360>

**Big Island, HI.**

VC-9: Basalt sand from Hawaii. More weathered basalt than VC-8 and some shell fragments.

Gigapan for VC-9: Beach sand from the Big Island, Hawaii: <http://gigapan.com/gigapans/200362>

**Hapuna Beach, HI.**

VC-10: Shelly sand from Hapuna Beach, Big Island of Hawaii. Collected 8/2001.

Gigapan for VC-10: Beach sand from Hapuna Beach on the Big Island of Hawaii: <http://gigapan.com/gigapans/200538>

**Block Mountain, MT.**

VC-11: Lithic sand from dry wash near Block Mountain, Montana, north of Dillon, Montana. Collected by Mary Beck 7/2005.

VC-39: Block Mountain, Montana, dry wash. Quartz fraction only.

Gigapan for VC-11: Sand from a dry wash near Block Mountain, Montana: <http://gigapan.com/gigapans/200504>

**Sahara Desert**

VC-12: Quartz sand from the Sahara Desert, hematite stained (red sand). Collected 6/2001.

VC-40: Sahara sand.

Gigapan for VC-12: Sahara Desert sand: <http://gigapan.com/gigapans/200496>

**St. Mary’s Glacier, CO.**

VC-13: Lithic sand from outwash sands near lake at base of snowfield of St. Mary’s Glacier in Colorado. Collected by Mary Beck, 9/29/16.

VC-41: St. Mary’s Glacier, CO, outwash sand at lake at base of snow field.

Gigapan for VC-13: Sand from the base of St. Mary’s Glacier in Colorado: <http://gigapan.com/gigapans/200386>

**Bell’s Beach, Australia**

VC-14: Lithic (magnetite) sand from Bell’s Beach, Victoria, Australia. Collected by Mary Beck, 7/2005.

VC-42: Bell’s Beach, Australia.

Gigapan for VC-14: Beach sand from Bell’s Beach near Victoria, Australia: <http://gigapan.com/gigapans/200416>

**Lake Ontario, Canada.**

VC-15: Lithic (garnet) sand from Lake Ontario, Toronto, Canada. Collected 7/1996.

VC-43: Lake Ontario, Toronto, Canada sands.

Gigapan for VC-15: Beach sand from Lake Ontario in Canada: <http://gigapan.com/gigapans/200415>

**Valencia College, FL.**

VC-16: Quartz sand from Valencia College, West Campus, Orlando, Florida.

VC-44: Valencia College sands.

Gigapan for VC-16: Sand from Valencia College West Campus, Orlando, Florida: <http://gigapan.com/gigapans/200382>

For the following ODP sands, here is the link to the journal article used asthe quartz textures reference:

St. John, K., Passchier, S. Tantillo, B., Darby, D., and Kearns, L., 2015, Microfeatures of modern sea-ice-rafted sediment and implications for paleo-sea-ice reconstructions. Annals of Glaciology, v. 56, n. 69, p 83-93.

<https://www.igsoc.org/annals/56/69/a69a586_rgb.pdf>

**Ocean Drilling Project Sands from site 918 near Greenland**. Identified by bold label.

ODP 918 **1H2** 22-26 cm (MB-5)

ODP 918 **4H3** 23-27 cm

ODP 918A **3H6** 98-102 cm (MB-4)

ODP 918A **5H7** 31-36 cm

ODP 918A **7H3** 102-106 cm (MB-2)

ODP 918A **10H3** 18-22 cm

ODP 918A **13H5** 48-50 cm

ODP 918A **19H2** 147-149 cm