Eastern Pacific Invertebrate Communities of the Cenozoic (EPICC) TCN

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UCMP PIs: Charles Marshall (Lead PI, UCMP Director), Seth Finnegan, Pat Holroyd, Lisa White
Collaborating PIs: Pat Drucmeniller (UAM), Liz Nesbitt (Burke), Edward Davis (UO), Peter Roopnarine (CAS), Jann Vendetti (LACM), Greg Dietl (PRI)
Unfunded collaborators: Cooper Center (Nicole Bonuso), Smithsonian NMNH (Kathy Hollis)
Scope

- Marine invertebrates (microfossils excluded)
- Paleocene – Pleistocene age
- From the eastern Pacific
## Progress in digitization

<table>
<thead>
<tr>
<th>TCN goals</th>
<th>TCN progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Specimens cataloged: 1.6M</td>
<td>• Specimens cataloged: 582K</td>
</tr>
<tr>
<td>• Specimens imaged: 85K</td>
<td>• Specimens imaged: 19K</td>
</tr>
<tr>
<td>• Localities georeferenced: 35K</td>
<td>• Localities georeferenced: 12K</td>
</tr>
</tbody>
</table>

~35% complete
Stratigraphic concordances

- Updating outdated stratigraphic units
- Based on: USGS GeoLex & unpublished USGS geologic names committee archives with updates from recent literature
- Script-ready data tables uploaded to Data Dryad
- Written descriptions of problematic formations
- California (200+ units; Peter Kloess, UCMP)
- OR, WA, British Columbia (66 units; Liz Nesbitt, Burke Museum)
Taxonomic concordance

- 5300+ entries to date
- Based on taxonomic authority papers
- Started with Recent and Quaternary mollusks (Austin Hendy, LACM); framework for taxonomic names from older fossil literature
- Collaboration with taxonomic experts to add additional groups (i.e., Arthropoda) and reconcile outdated taxonomic concepts
Virtual Field Experiences

- Gigapixel photography
- Video clips
- Connect museum specimens to the places they were collected
- ESRI Story Maps platform
Research uses of data

• TCN data served via individual IPT or VertNet IPT to iDigBio, GBIF, etc.

• Ecological and evolutionary response of marine species and communities to major environmental changes such as:
  – Paleocene-Eocene Thermal Maximum
  – Greenhouse-icehouse transitions
  – Opening of Bering Strait, closing of Panama Seaway
  – Contraction of the tropics
Take home messages

- Products already available
  - Guide to labeling marine invertebrates
  - Setting up GeoLocate collaborative portal
  - Standard views of marine invertebrates for photography

- Find new uses for these data!
- Ask questions about our data!
- Combine your data with ours!
- Have feedback on our approach? Talk to us.
Acknowledgements

- PIs, students, staff and volunteers of EPICC
- iDigBio staff and trainings
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