

Virtual Palaeoscience (ViPs)

Collating, curating and developing virtual lab and fieldtrip resources for palaeoenvironmental teaching

WORKING GROUPS

SIX WORKING GROUPS PROPOSED (see below for more details of each)

1. Collation
2. Fieldwork
3. Data (laboratory) collection and analysis
4. Guest lectures
5. Pedagogy
6. Technology

WORKING GROUP REMIT

- Take on a specific area of activity (scope to be finalised through coordination group to minimise overlap and maximise co-operation)
- Organise however they choose – e.g. have a single champion/ coordinator or a coordinating group, have meetings by video-chat or work by mailing list etc. etc.
- Decide priorities for this summer (and beyond)
- Draw up rough guidelines for individual product makers
- Make sure there's not duplication of effort among product makers
- Keep a general record of activities and decisions and regularly update the collation and dissemination group so that the website can be built over the summer
- Send a representative to the regular coordinating group meetings to minimise overlap, contribute to the planning of the August meeting etc.
- Send someone to present something about progress at the August meeting

COORDINATING GROUP REMIT

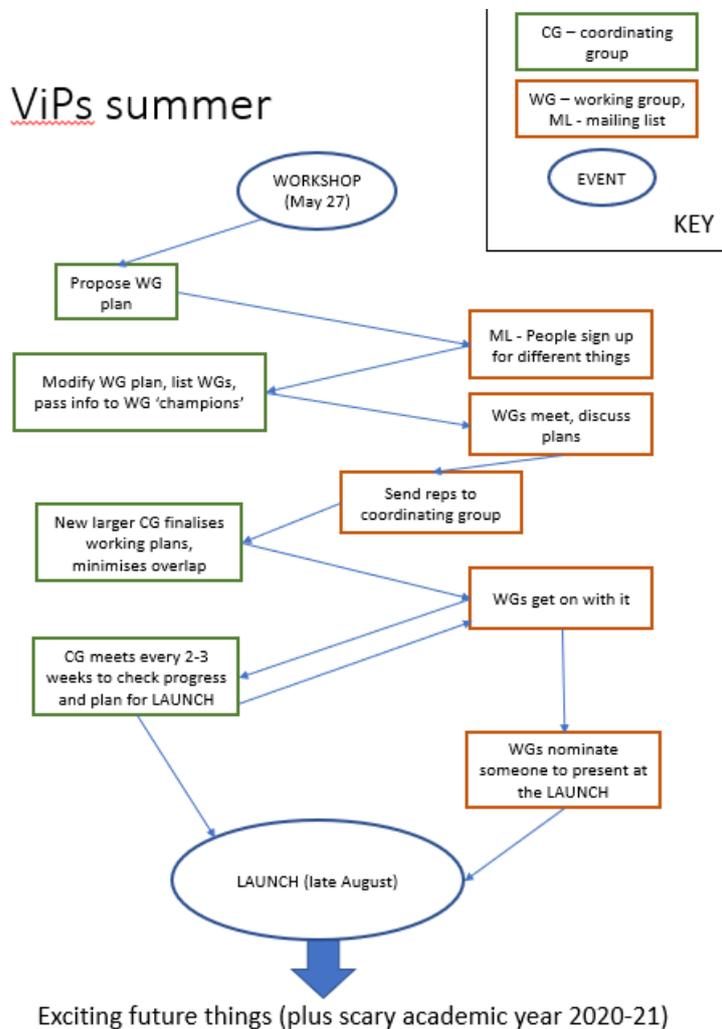
- Keep project moving
- Facilitate communication across the whole mailing list and with the wider community
- Minimise overlap between working groups
- Maximise sharing of materials and ideas between working groups
- Oversee website development and ensure IP and GDPR are addressed appropriately
- Plan for August meeting and legacy of resources collection
- Plan for or support planning for follow-up work (pedagogy projects, VR landscapes etc.)
- Represent the project to the wider community (e.g. RGS, QRA)

Membership: project initiators plus 1-2 representatives from each working group

PARTICIPATION

Anyone can belong to any working group, either as an organising member, as a contributor, or as a product tester

WORKFLOW FOR SUMMER 2020, diagrammed:



Suggested dates

May 27 – workshop

June 1-3 – CG propose WG plan, create form, send email to ML

June 8-10 – CG collate results so far and send to WGs so they can start

w/c June 22 – first larger CG meeting

w/c July 6 – CG meets

w/c July 20 – CG meets

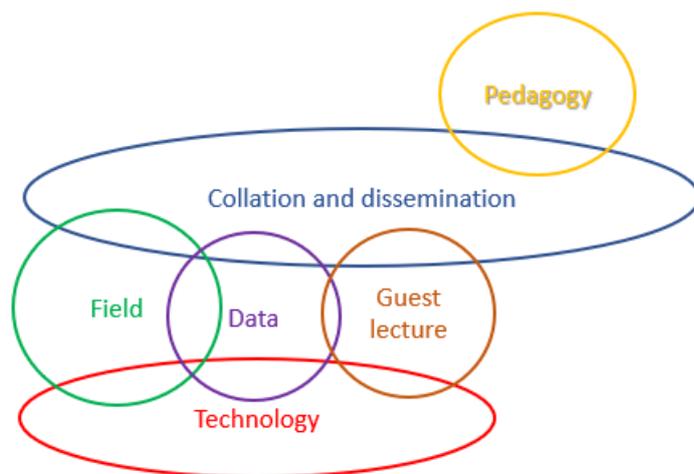
w/c Aug 3 – CG meets

w/c Aug 17 - CG meets

w/c August 24 – Launch event

w/c August 31 CG meets to decide

Description of Working Groups/remit notes



On the left is a rough visualisation of how the WGs might relate to each other **during the first few months of the project** (all meet and communicate through the coordinating group).

Collation finds and checks current resources, designs a website structure, and ensures both current resources and new ViPs resources are shared in a sensible way (and that new ViPs resources have a safe and long-lived place to live e.g. on a cloud server, in a private YouTube Channel for videos)

Field, Data and Guest Lectures identify gaps, then come up with plans to create new materials to fill those gaps. They pass any existing materials they find and their new materials to collation for storage and dissemination.

Technology is a source of help and advice for all groups about, well, technology –tips for making a usable video on your smartphone, editing software advice, R expertise (or other software) to help write a great data analysis practical tool, wizardry for VR and AR.

Pedagogy will focus on ways to make the best use of the materials in the collation, both by sharing usable materials like assessment strategies, samples of syllabi etc., and by designing pedagogic research instruments to be used alongside selected sets of material in 2021, to improve our understanding of how students receive and respond to the materials.

More details about groups, including notes from the breakout groups at the May workshop and 'wish list' items from the forms people submitted to join the mailing list, are provided on the next pages.

Working Group 1 COLLATION

Primary role: collecting, summarising and linking to existing resources, working with the coordinating group to ensure IP is properly protected

Relevant snippets from other documents (wish list items etc.)

- Make it easy for individuals to make a tailored module or teaching unit based on available material.
- Making the website etc. easy to use (working with **technology group**) e.g. searchable matrix to compile interests/teaching material easily
- A summary of what video resources are already available, with some form of quality mark for each
- Methods sheets from multiple labs (with **data collection and analysis group**)
- Seeing what other disciplines have available for various skills
- List of secondary data sources for student projects (with **pedagogy group**)
- Working group to develop website (template for submitting resources; decide on audience -- different access for educators and students?).
- would be great if all material is easily accessible/searchable so individuals can compile to make bespoke courses for teaching specialisms.
- Making sure it's easy to contribute to the website
- Making sure we list generic free software, critical for students who no longer have access to on campus resources. E.g. PolPal (excel pollen diagram plotter), Inkscape (with **technology group**)

A separate document which lists recommended resources from the original expression of interest forms has been compiled to start this group off...

Working Group 2: FIELDWORK

This group might split into two or three sub-groups:

- those working on VR fieldtrips now, whether that's adding materials to existing ones or starting something new
- those creating free-standing materials (videos, photo sets) of field methods for palaeo e.g. coring (which might later get embedded into VRs)
- those creating materials about modern environments either for presentation ("this is a hazel coppice") or for students to be able to do things with in a practical ("here's an image of a rock with a scale object, measure the diameter of ten individual lichens")

Relevant snippets from other documents (wish list items etc.)

- many kinds of fieldwork, many kinds of landscape.
- Maybe split into VR (whole landscape) and specific techniques
- Techniques list: coring lakes and mires, vegetation survey, logging and sketching sections etc.)
- What to wear and do on a field trip
- Field sketches – both how to video and explorable landscapes or good photographs students can make field sketches OF.
- Introduction to keeping a field notebook
- Getting students to engage with how and where to take the core [note: this could be done through a HUMPOL practical for pollen data – Anne Birgitte Neilsen and Jane Bunting have experience with this)
- Videos of coring: Russian corer in peat bog, lake coring etc etc.
- Describing a core – how to, digitised image from the core or cores, ideally presented in 3D and movable so students can do it
- Video of taking tree rings, high quality images of tree rings (resource already suggested)
- Sampling modern environments – soil, water, vegetation, diatoms from rocks, measuring lichens – videos and possibly images for interactive stuff
- Film of different modern environments e.g. different types of vegetation
- Visualising and understanding exposures, sedimentology
- Need to think carefully about duplication of work/effort with other groups e.g. RGS doing virtual fieldwork. *Des is a member of the RGS working group so we will hopefully have good communication!*
- Ideas for individual fieldtrips, where students go to their local landscape and record thoughts (with **pedagogy** group)

Working Group 3: DATA COLLECTION AND ANALYSIS

Group task is to identify gaps, agree common kinds of formats and materials (e.g. what types of resources are needed, videos, photosets, a fully worked up practical class, a dataset to use in an assessment...), then work in smaller groups according to proxy type or where gaps were identified. Sub-groups maybe organised by proxy to work across the sample journey from arrival in the lab to interpretation

Relevant snippets from other documents (wish list items etc.)

- adding to CoPol list
- other themes also matter e.g. other microscopy (microstructure), geochemistry/chronology, sedimentology and soils, etc.
- Include technicians, especially for making videos.
- Data analysis methods (age-depth models, computer practicals)
- Methods sheets from multiple labs (with **collation group**)
- CoPol for diatoms with case studies of e.g. acid lake, eutrophic lake ready to go
- Core handling: split cores, describe cores, take samples
- Images of a range of sediment types e.g. gyttja, clay, clay-silt etc., perhaps in different states (block, in water, under microscope) so students can describe them
- basic sedimentary analyses e.g. loi, mag susc, XRF
- Videos of sample preparation for pollen, diatoms etc
- Short videos of scanning a slide with expert narration (“live” practical)
- Age-depth modelling using e.g. Maarten’s R packages
- also have geochemistry as priority
- Resource on how to log sediment cores (description, photo – zoom-able, ability to zoom-in, interactive – multi-layer, see plant macrofossils. [needs some coordination – core extraction, photography. OR do people have existing cores? Integrate into virtual field trips?]
- Would love to see development of non-northern hemisphere examples e.g. from Latin America, Africa

Working Group 4: GUEST LECTURES

This group's tasks would be to decide on a format/guidelines, ensure people aren't duplicating content, and identify gaps and solicit talks where a gap is considered a priority. This group would organise the creation of short expert videos on a range of topics, habitats, methods, concepts, or principles, which could be used in many ways to couple with readings, link from VRs or other documents, and which could in the longer term be developed into more complex complete 'master classes'. It would also encourage the

NOTE 54 expressions of interest forms offered talks so far

Relevant snippets from other documents (wish list items etc.)

- isotopes in carbonates
- less widely used biotic proxies
- carbon cycle and radiocarbon dating
- Geochemistry and geochronology methods and principles
- Specific places e.g. tropics, Tasmania, mountains...
- Virtual guest lectures would be fab! (lots of comments about this) – topics specifically mentioned include dating – OSL, 14C etc. –
- maybe short lab tours.
- Introductions to topics as well as to methods.
- Offer of a 14C video
- *"I take students out and show them various tree types and then tell them about the history of the tree via a few classic pollen diagrams, so stand under the tree and tell a story about Holocene history so they can connect and visualise during later lectures examining pollen diagrams. They get everything from a brief taxonomy and id to a holocene history - easy to do even on a phone camera over the summer"*

Working Group 5: PEDAGOGY

This group will probably split into at least two sub-groups:

- one working on designing research methods to go along with materials for academic year 2020-21 e.g. student feedback form to go along with CoPol so that we could do some actual meaningful research with the findings
- one working on supporting the use of these materials in teaching which might include sharing syllabi or assessments, working with other groups to write sample student instructions and practicals to go along with the videos and datasets etc. being produced, and possibly seeing what sort of support community members might need and then using more experienced members to either pair up as mentor/mentee or buddies writing similar courses, or to run a panel seminar (e.g. get three people who actually ran a virtual fieldtrip recently to answer questions about how they did it for an hour))

Relevant snippets from other documents (wish list items etc.)

- Sourcing real-world unpublished secondary data for assessments.
- Ensuring accessibility – equality, diversity and inclusion in mind throughout
 - Advice on how to overcome barriers to using materials
- How to do online computer practicals and advice on dealing with software issues
- List of secondary data sources for student projects (with **collations** group)
- How to give students “ownership” of virtual samples to improve engagement with practical stuff?
- Resources accompanied by instructions/suggestions for application within teaching environment and incorporation of assessment
- Share ideas for small experiments within the community that students can do at home.
- Sharing/discussion/advice around assessments: how to bring different materials together for holistic interpretation of landscape change
- Ideas for individual fieldtrips, where students go to their local landscape and record thoughts (with **fieldtrip** group)
- Perhaps can make interactive practicals and could include students in building these resources e.g. searching for images etc as part of the resource.
- Some of way connecting people who have used software before to those who are keen to try it out.
- Opportunities to bring people together to work on projects that combine teaching, pedagogy and research.
- how to replicate the hands on lab experience (rather than students just watching us do something)
- Difficult re recreate the learning value of students turning up in the field in the wrong gear, but a short video on field safety.
- ideas for how to use resources within teaching environment e.g. engaging students through appropriate assessments.
- A graduate employability dimension (e.g. students develop resources).
- Really important to approach resources with equality, diversity and inclusion in mind. Some students may not have access to good internet connection or tech to allow engagement with complex or resource-intensive software

Working Group 6: TECHNOLOGY

This group is more of a “pool of helpers” and source of expertise to the other groups than a direct generator of content. It might focus on making sure other groups know who to ask for advice, on preparing advice sheets or videos to ensure the production of decent materials, e.g. tips for recording a video in the field on a smart phone, or tips for taking good photos, or on recommending suitable free software e.g. how to edit a video file to add an intro and ending slide or overlay text (e.g. spelling of technical words) etc.

This group will also be an essential part of planning for the longer term work and funding bids we’ll need to do to create the larger VR “full environment fieldtrip” we hope to create, and will work with the coordinating committee to develop follow up projects and funding applications.

Relevant snippets from other documents

- need to establish some means of linking up people with tech skills with people with resources (e.g. someone with R skills to update CoPol).
- Buddying system?
- Making the website etc. easy to use (working with **collation group**) e.g. searchable matrix to compile interests/teaching material easily
- some kind of buddy system to ensure working across expertise - so linking people with the tech skills to people with data (e.g. microfossil images). Some of way connecting people who have written the software and used the software before, to those who are keen to try it out.
- How to make resources advice would be good
- Making sure we list generic free software, critical for students who no longer have access to on campus resources. E.g. PolPal (excel pollen diagram plotter), Inkscape (with **collation group**)