Legacy of Glaciers_cci

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GAMMA REMOTE SENSING

What is a legacy?

Our interpretation of 'legacy' is:
For what will Glaciers_cci be remembered after the project finished?

This is actually difficult to say, as
- the project is still running (not possible to have yet a retrospective view)
- this might only be called a legacy after several years
- others are likely better to determine it (this should be an outside view)

But we can already look at GlobGlacier, what remained here?
- when meeting colleagues at conferences, they still ask how GlobGlacier is going
- contacts to the CRG members of the project (10 persons) are still active
- engagement/support of non-science issues (GLIMS, GCOS) is still recognized
- joint work on community papers (guidelines/standards) is highly valued
- wide recognition of the work performed through round robin and outreach
- website is still visited, document deliverables are still cited

Without doubt, all this would not have worked without good publications
- These help establishing the required credibility in the science community
- Doing this on your own and together with others (team, external) seems key
- Making data available before (& after) publication helps to be remembered

Response to the 4 questions

1. What was status of the Glaciers landscape at the start of the CCI programme?

- slowly improving thanks also to GlobGlacier and free availability of orthorectified Landsat data
- increasing awareness that we can do great stuff once a global glacier inventory is available (GIP)

2. What is the status of the Glaciers landscape at the end of 6 years of CCI?

- everything is in a rather good shape (RGI, GLIMS EB, WGMS support)
- increasingly exciting outlook regarding possibilities (free EO data, L8, S1/2, RGI, methods, technology)
- knowledge gain and process understanding has made incredible jumps since 2010 due to RS data
- things beyond believe are happening and we can follow (and measure) them from space (back to 1960)

3. What are the activities in CCI that have served to change from Status 1 to 2?

- Data production, joint publications, free methods and data, automated (simple, reliable) algorithms
- Strong engagement in international activities (GLIMS/RGI, GCOS/WGMS), meetings/workshops

4. What are the lessons learned from CCI to provide to future projects?

- Be aware of what is going on internationally (IPCC!) and think about a unique contribution
- Go big (cryolist, glimslist), advertise (conferences) and include colleagues from the beginning
- Do not only publish science results (and if, then jointly), but also methods & standards (deliverables)
- Provide (high-quality) datasets to the community, do it better than others, be open for critique
- Contribute to activities of the science community and int. organizations (GLIMS/RGI, GCOS/WGMS)
- Socialize and look over the border of your ECV (Cross-CCI, CRG, CMUG, Co-location, break-out groups)
- Keep your team running science-wise (SL) and in a good shape management-wise (PM)
- Frequent telecons, MPRs/QPRs, standardized internal communication and workflows help

What might be the legacy of Glaciers_cci?

- Publications on methods, data standards, datasets (inventories), changes
- Knowledge gain (e.g. closing gaps about mass changes in High Mountain Asia)
- Datasets (RGI contribution, quality improvement, establishing standards)
- Separating Greenland's peripheral glaciers &the API glaciers from the ice sheet
- Satellite data: pre-tests & feedback on S2, CS2, buying Corona/Hexagon scenes
- DEM analysis with feedback to Space Agencies (improved orthorectification)
- Intense Outreach (conferences/meetings/workshops/teaching/media) => contacts
- Reviews for journals with feedback on standards (methods, quality)
- Support of international activities (RGI working group, GLIMS, WGMS advice)
- Establishing a GLIMS Executive Board
- Contribution to international documents (IPCC, GIP, WGMS, GCOS)
- 'Remote Sensing of Glaciers' special issue of Remote Sensing (Guest Editors)
- Freely available tools for product generation (co-registration & velocity @GUIO)

Working together!

Some joint community publications:

- Zemp, M., and 35 others (2015): Historically unprecedented global glacier changes in the early 21st century. Journal of Glaciology, 61 (228), 745-762.
- Paul, F. and 24 others (2015): The Glaciers Climate Change Initiative: Algorithms for creating glacier area, elevation change and velocity products. Remote Sensing of Environment, 162, 408-426.
- Pfeffer, W.T. 18 others and the Randolph Consortium (2014): The Randolph Glacier Inventory: a globally complete inventory of glaciers. Journal of Glaciology, 60 (221), 537-552.
- Hollmann, R. and 15 others (2013): The ESA Climate Change Initiative: satellite data records for es-sential climate variables. Bulletin of the American Meteorological Society, 94 (10), 1541-1552.
- Gardner, A.S. and 15 others (2013): A consensus estimate of glacier contributions to sea level rise: 2003 to 2009. Science, 340 (6134), 852-857.
- Paul, F. and 18 others (2013): On the accuracy of glacier outlines derived from remote sensing data. Annals of Glaciology, 54 (63), 171-182.
- Bolch, T. and 11 others (2012): The State and Fate of Himalayan Glaciers. Science, 336, 310-314.
- Paul, F., R. Barry, G. Cogley, H. Frey, W. Haeberli, A. Ohmura, S. Ommanney, B. Raup, A. Rivera, M. Zemp (2009): Recommendations for the compilation of glacier inventory data from digital sources. Annals of Glaciology, 50 (53), 119-126.