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Glacier biogeochemistry: from Haut Glacier d’Arolla to the Antarctic and Greenland Ice Sheets

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Glacier biogeochemistry grew out of hydrochemical studies of water movement through small valley glaciers in the 1970’s into modern studies of ice sheet runoff and ice berg fertilisation of the oceans. This talk will briefly review how this happened, and then look at the current research agenda with a view to identifying research needs and future research directions. Research on subglacial lakes, nutrient export to the oceans, biological ice sheet darkening and the production of bioavailable, yet ancient, dissolved organic carbon on glaciers will be covered. Finally, when you think you know it all, a new process fundamental process turns up. Recent work on the release and production of bioavailable chemicals by glacier erosion will be highlighted, including the significance of the this work in the search for life beyond Earth.