

# Future projection of global-scale glacier mass loss and sea level rise

\*Koji Fujita<sup>1</sup>, Akiko Sakai<sup>1</sup>

1. Graduate School of Environmental Studies, Nagoya University

We conducted a global scale future projection of glacier mass loss by an energy-mass balance model [1] with two RCP scenarios (2.6 and 8.5) of 12 GCMs of CMIP5 to contribute GlacierMIP [2]. Following an approach of optimizing precipitation based on an assumption of median elevation as ELA [3, 4], we surveyed optimizing period resulting the best estimate of reconciled glacier mass loss for the period 2003-2009 [5] with ERA-Interim reanalysis dataset. Further calibration was made on GCM air temperatures by referring ERA-Interim air temperature. Glacier hypsometry was simplified with elevations of terminus, median and maximum, and then changed with a conventional area-volume scaling. The estimated glacier mass loss for the validation period (2003-2009) was 183 Gt yr<sup>-1</sup> while the reconciled mass loss was 253 Gt yr<sup>-1</sup>. The projected glacier mass losses were 54.8 and 105.7 mm s.l.e. for RCP2.6 and RCP8.5, respectively. These projections are 55 to 70% of the projections in IPCC AR5 [6].

## References

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