Thank you for insightful review. My response is in bold below each section.

General comments
This paper presents HadRM3 regional climate model simulations driven by two different GCMs, HadCM3 and ECHAM5, for the glaciated regions of the high mountains of Asia. The main conclusions reached in the paper are that while air temperatures are projected to increase resulting in increasing ablation across the region, changes in precipitation are projected to be complex with significant differences between the western and eastern sectors of the region. Particular attention is given to changes in solid fraction of precipitation as it is this component of precipitation that controls accumulation
C1720
and slows down glacier melt due to changes in reflectance. The division into liquid and solid precipitation is not frequently analysed in literature and analysis of shifts between liquid and solid precipitation is a particularly interesting aspect of the study.
The main contribution of this study is the presentation of the climate data simulated with a comparatively high resolution. HadRM3 has a horizontal resolution of 25 km and availability of these data should significantly enhance research in both glaciology and water resources of the region. Therefore, potentially, this paper can make a strong impact and be very useful for the glaciological, climate science and water resource communities.
The current version of the paper has a number of significant shortcomings. Firstly and most importantly, the paper lacks detailed discussion of uncertainties in the modelled data. These are likely to be high especially with regard to precipitation and the author may have to invest time and effort into their analysis and explanation. However, uncertainties in the outcomes of RCM experiments in the mountainous regions will come as no surprise to the research community and detailed analysis of the uncertainties and biases in the baseline climate is important to enable informed use of the data. The use of ERA-Interim-forced simulation and two different GCMs enables a detailed analysis of uncertainties introduced by the use of different GCMs and associated biases and will allow those involved in hydrological and glaciological modelling to select more appropriate input data.

I have substantially revised this section of the paper to include the limitations associated with resolution, process representation (snow rain fractionation) and GCM scenario uncertainties. The comparison between ERA-Interim and the GCMs has been made clearer and more extensive.

Secondly, I would like to see more detailed analysis of the projected changes with regard to both, regions and months / seasons. These are summarised in Figures 6-10 and I struggle to read some of these data (Fig. 6 and 7) due to the size of the figures. I suggest that the author should break Section 3.2 into further sub-sections focusing on temperature, precipitation, and solid fraction of precipitation and compare the results derived from HadCM3 and ECHAM5 driven simulations for each variable for each region. The text, as it is now, is hard to follow and does not show the [very interesting] results to their best advantage.

Apologies for the figures, they were poorly reproduced. All figures have been redrawn and the climatology figures split (as suggested by another reviewer) to show anomalies for the two GCMs and a third figure comparing present day ERA-Interim, HadCM3 and ECHAM5.

C1721
Thirdly, the paper's structure and style require improvement. There are numerous repetitions, the text doesn't always flow logically, the breakdown between the sections is not always clear (e.g. sections 2.1 and 3.1), and terms are used in a rather loose way. Editing should not take long and will improve the overall impression considerably.

Paper has been revised and restructured as suggested.

Fourthly, I suggest that the author should steer clear of the statements he can't substantiate. For example, in the Abstract he states that "Overall, the eastern Himalayan glaciers are expected to be most sensitive to climate change due to the decreases in snowfall and increased ablation associated with warming." On page 3731, line 11, he states that "Despite this, glaciers in this [western] region seem to be less sensitive to climate change than those in the east." Mass balance sensitivity and glacier response depend on many factors (which is acknowledged) and the paper merely suggests that the western region will be getting more solid precipitation and the eastern ones less but it does not evaluate 'sensitivity'. Other terms should be used, e.g. impacts of climate change will be greater / weaker?

I have endeavoured to clarify these points throughout the paper. The references to sensitivity have been changed to relate to 'impact' or 'vulnerability.'

Specific comments
Abstract
It is too long and includes elements of discussion (e.g. debris cover) rather than a concise statement of results.

Agreed. Changed as suggested.

Section 2.1. Regional Climate Modelling.
This section is confusing and should be revised. The section is named Regional Climate Modelling but it starts with a discussion of uncertainties without showing any data. I suggest that the experiments should be described in this section and a separate and a very detailed section on uncertainties provided as a part of the Results. Your experiment design is explained poorly. You state that ". . . we employ a version of the HadRM3 Regional Climate Model to dynamically 25 downscale ERA-Interim reanalysis (Dee et al., 2011) and climate simulations from two GCMs." You further state
C1722
that "The meteorological reanalysis provides a consistent best estimate of the atmospheric state of the past, and the downscaled product is thus our best estimate of the climate of recent past despite additional errors and uncertainty from the reanalysis process and the downscaling itself." It is not clear from the text at this stage (and until Fig. 6 and 7 appear) that you compare simulations of the baseline climates driven by the reanalysis and by the GCMs to give a measure of both RCM and GCM uncertainties. Make it clear especially in the view that the paper is submitted to The Cryosphere and aimed at glaciologists rather than the climate modelling community.

Agreed. Text revised.

In Fig. 6 and 7, you compare GCM baseline climate for 1971-2000 with 1992-2008. The time difference between 1971 and 1992 is probably sufficient to introduce a significant bias into this comparison. I understand that there is a mismatch between the ERA-Interim starting date and end of the baseline period in the GCMs but this issue should be addressed.

Agreed. In most cases a corresponding baseline was used. Figures redrawn and analysed.

Section 3.1. Projected Changes in South Asian Climate.
This section is out of place in Results and Discussion and its title is misleading. It is not based on the results obtained in this study but on other papers. It should be incorporated in Section 2.1. Why do you show data from five different GCMs (Fig. 5) here? If you use them to justify choice of GCM to force HadRM3, then they belong in Section 2.1.

Agreed. Manuscript revised. Section moved to 2.1

Analysis of uncertainties and biases.
A separate section should be added to the Results. The baseline climates based on ERA Interim, HadCM3 and ECHAM 5 are shown in Fig. 6 and 7 but these are almost unreadable. I suggest that specifically baseline climate data for different months and

seasons from the three simulations should be shown and discussed separately so that one can see biases in the data from both GCM-forced simulations in comparison with the one forced by the reanalysis. It would be useful to see comments on the origin on the biases, e.g. model deficiencies or problems with observations. The differences
C1723
between the baseline climates derived from the experiments forced by HadCM3 and ECHAM5 would be of substantial interest especially with regard to precipitation.

Agreed. Section separated, additional analysis and inclusion of available observations.

You comment that "A study by Ridley et al. (2013) found this could partly be explained by changes in circulation with HadCM3 simulating increased occurrence of WDs, with an associated overall 37% increase in winter snowfall, whilst ECHAM5 showed no change in occurrence of WDs". Does the simulation forced by HadCM3 show higher number of WSs in the baseline period? HadRM3 forced by HadCM3 overestimates WDs and associated cold-season precipitation in many different regions including the glaciated regions of Asia (Shahgedanova et al., 2010). Could it be the case here?

That doesn't appear to be the case here. Ridley found WD to occur 27% of the time in ERA-Interim and NCEP-2 reanalyses, and 20 and 27% in downscaled HadCM3 and ECHAM5 respectively.

Results:
Page 3728_10-11: I doubt that "latent heat from rain" will make a significant impact on energy balance. We tried to evaluate it for the Siberian glaciers (unpublished) and didn't find any significant impact. Refreezing of rainfall percolating into the snow pack / firn may be a more important issue although here melt water refreezing could make a greater impact.

Agreed. Removed.

Page 3728_27-28: On the partitioning between solid and liquid precipitation. "The glaciers in the eastern HKKH are predominantly summer accumulating with winter accumulation types dominating in the west." It would be interesting to see comments on how temperature and partitioning between solid and liquid precipitation changes in the western region in the 'transitional' between ablation and accumulation months (Fig. 6 and 7). We found that in northern Asia changes in the 'transitional' months may increase ablation season (Shahgedanova et al., 2010; 2011) and make an impact on the overall mass balance. Is this the case here? If yes, it may have implication on redistribution of runoff.

Minor comments
3719 _ 16: ". . . vulnerability of water resources to climate change. . ."

Changed

C1724
3720_5: replace 'in the state of negative mass balance' with 'experience negative mass balance'

Changed

3720_6: ". . . in other regions of the world"; I would add 'due to the glacier elevation'

Changed

3720_8-9: elevation and debris cover are not 'glaciological issues'; they are glacier parameters (or variables depending on the time scale)

Changed

3720_18-20: “Overall, the HKKH regions are losing mass at a lower rate than other glaciated regions. The overall negative trend in mass balance is confirmed by other 20 satellite studies (e.g. Jacob et al., 2012)”. These sentences should swap places and be placed after paragraphs discussing individual regions, e.g. Karakoram etc.

Changed

3720_21: Fowler and Archer (2006)

Changed

3722_13: “looks at the issue of Westerlies in more detail. . .” What does the word ‘issues’ mean in this context?

Removed. Unnecessary detail

3723_23: “. . .The eastern glaciers experience summer accumulation and summer ablation. . .”

Changed

3724_12-15: “The physical basis for degree day modelling is the close relationship between the two main components of the energy-balance; net long-wave radiation and sensible heat flux which often drives melt (Hock, 2003).” This phrase will get you into trouble as a strong argument can be made for short-wave radiation driving energy balance although both long-wave and sensible heat fluxes may play an important role too. Just say it reflects relationship between air temperature and melt.

Changed

3724_15: “ . . . and perform well in comparison with. . .” They perform well for individual glaciers either.

Changed

3726_8: Why reference to Table 1 appears here while the discussion of mass balance is on pages 3720-23? Delete “and shows that only the Karakoram is possibly gaining mass within the given uncertainties”; it is a repetition.

Changed

C1725
3729_1: “The glaciers in the east therefore coincide the timing of snowfall with the greater increases in potential melt”. Re-phrase.

Changed

3729_22-23: “Within the projections presented here there is the large amount of interannual variability seen in snowfall across the ???”
Table 1: Satellite derived glacier mass balance 2003–2009 from Kääb (2012). Mass balances are from scenario ab. This is a confusing title: satellite or A1B?

Agreed. Clarified