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Interactive comment on "Modelling forest lines and forest distribution patterns with remote sensing data in a mountainous region of semi-arid Central Asia" *by* M. Klinge et al.

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General and specific comments: The paper by Klinge et al. used satellite images, digital elevation models and climate modelling to detect and map the forest distribution pattern and forest limits in a remote area of the northern Tian Shan in Central Asia. They address the climate conditions at the upper and lower timberline and discuss the potential human impact on the forest distribution. The overall quality of the paper is very good and the paper should be published.

The authors show a strong relation between forest distribution and climate conditions. They calculate a minimum annual precipitation of 250mm and a minimum monthly

mean temperature of 5°C during the growing season. The forests in the investigation area are strongly restricted to north facing-slopes. The authors presumed that variations in local climate conditions are a function of topography, and thus they analyzed the parameters slope, aspect, solar radiation input and elevation. All four parameters showed a strong relationship to forest distribution, showing that the potential forest area can be 3.5 times larger than the present forest. This is very good documented by the tables and figures. Questions by BG: 1. Does the paper address relevant scientific questions within the scope of BG? Yes 2. Does the paper present novel concepts, ideas, tools, or data? Yes 3. Are substantial conclusions reached? Yes 4. Are the scientific methods and assumptions valid and clearly outlined? Yes 5. Are the results sufficient to support the interpretations and conclusions? Yes 6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Yes 7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? Yes 8. Does the title clearly reflect the contents of the paper? Yes 9. Does the abstract provide a concise and complete summary? Yes 10. Is the overall presentation well structured and clear? Yes 11. Is the language fluent and precise? Yes 12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? Yes 13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? No 14. Are the number and quality of references appropriate? Yes 15. Is the amount and quality of supplementary material appropriate? Yes

Technical corrections, typing errors, etc.: Just check the typing: Altai or Altay

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