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Atmospheric Measurement Techniques Discussions
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Interactive comment on "Return glider radiosonde for in-situ upper-air research measurements" *by* Andreas Kräuchi and Rolf Philipona

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Manuscript: Return glider radiosonde for in-situ upper-air research measurements by

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Overall comments:

Separation between engineering measurements and atmospheric measurements - We do not really agree with this comment. In Chapter 7.2.4 we are not talking of atmospheric temperature measurements but only of engineering measurements. Here, the ambient and atmospheric temperature is mentioned because it is critical for the engineering problems. In this paper we are not discussing atmospheric measurements but the RGR that brings the instruments back. The radiation measurements that are

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Discussion paper

shown at the end are only shown as an example.

Payload capabilities to carry other instruments – We have shown in our manuscript that it is possible to fly back with the glider from 24 km. This should also be possible for other instruments. However, we cannot go into details here.

Reducing number of figures - We have reduced the number of figures from 10 to now 7 figures only.

Figure 1 and 2 have been combined

Figure 3 (new figure 2) has been replaced by a photograph of the RGR.

Figure 3,4,5 dimensions - The wingspan and weight has been added in figure caption 3 (new figure 2). We think that on figures 4 and 5 (new 3 and 4) dimensions are not necessary.

Figure 3 (new figure 2), T and RH sensors - T is a thermocouple that is very small and the humidity sensor is inside the styropor.

We have taken out figure 6 and leave only figure 7 (new figure 5). We have given more details on distances and dimensions in the caption of figure 5.

Figure 8 was taken out and figure 9 has now become figure 6 and only shows the analyses of the flight to 20 km. The text has been corrected accordingly.

Wind speed and RGR speed. The wind speed is recorded with the radiosonde and the horizontal speed of the RGR is always with respect to ground. This sentence has been added in the caption of the figure.

Both panels of figure 10 which is now figure 7 have been increased.

The word “control” is used many times - yes, this was right and we have now made changes in many cases were the word control was used.

Specific comments:

P2 L29: The sentence has been changed

P3 L22: Is an entire section on parafoil systems necessary? We still would like to have it in but the paragraph has been reduced to half the length.

P4 L1: We have changed this misunderstanding

P4 L17: We changed the sentence to - very different payloads –

P5 L4: We think this sentence is correct since we did not know how a glider flies at 24 km. So we had to test it going further up.

P5 L19: We changed the sentence as suggested

P5 L21: The payload for radiosoundings is 2 kg. We added this in the text.

P5 L24: It would go too far to answer this question. The sentence has been removed.

P6 L22: We do not want to go into such details, since we think it not necessary.

P6 L30: Since we are speaking here of the instruments we think that these sentences are clear with regard to the cables.

P7 L1: T and RH measurements are important while going up like a radiosonde with the balloon. Coming down the glider is in certain phases at very high speed and therefore this measurements can be influenced.

P7 L7: The radiosonde payload is limited to 2 kg as stated in the manuscript. However, we do not want to go further here because for other instruments special permissions will have to be requested.

P8 L5: Radiosondes are only measuring wind direction and wind speed. We have changed the text.

P9 L24: This is correct, we changed the word.

P10 L2: Flight adjustments have to be made on the glider at low altitude. However, we

do not want to go in details about this.

P10 L7: Yes, we can change them, we changed the sentence.

P10 L24: GPS has been defined.

P10 L29: Yes, the right name is u-blox. We corrected it.

P11 L14: Yes, feature is better

P11 L22: The sentence has been changed to – correct handling –

P12 L25: The sentence has been changed

P13 L11: Yes, of course. This has been corrected.

P13 L17: The wind conditions are important, since they tell us whether we can launch the RGR or not.

P15 L14: OK, we changed this

P15 L24: This whole paragraph has been deleted

P15 L28: This paragraph has been deleted

P16 L11: If RH is 100% we are in acloud

P16 L27: the special flight path is to lift up the nose of the RGR. The text has been changed

P17 L28: Dew/frost point hygrometers are used in the UTLS since many years. We have slightly modified the text , but cannot go into details here.

P18 L12: No, we have shown further up that under very strong wind the RGR goes backward versus ground but with the nose against the wind.

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