General Comments

This preprint provides an excellent description of more than 20 years of high quality and valuable Antarctic surface meteorological data from the IMAU automatic weather station (AWS) network. These AWS were designed to enable estimation of the ice sheet surface energy and mass balances.The publication clearly outlines what variables were measured, what instrumentation was used, how the data were processed and how corrections were made. The accuracy of the measurements is assessed in several ways including during periods when overlapping measurements from two AWS were made at five of the locations. The data availability from each station is summarised in both Figure and Table and the climatology at each site is also summarized.

Clear links are given to how the data can be accessed and to the software codes used to pre-process and correct the measurements. I particularly liked the simple flag assigned to each data sample alerting of potential problems in each of the measured variables.

The IMAU Antarctic AWS network is one of several that provide Antarctic surface meteorological data. Others include those of the University of Wisconsin, the Australian Antarctic Division and the Chinese Antarctic Programme. These are mentioned and acknowledged in the preprint. But I think that the larger Antarctic AWS data set can be more directly referenced with a few small changes that do not length the manuscript (the focus of which clearly should be the IMAU network). This could be simply done by noting in the Introduction that the locations of all AWS that have been deployed in Antarctica are shown on Figure 1 and that details of these stations are given in Wang et al., 2023 (reference already cited).

I could find no mention of what height the sensors were initially deployed at: this should be included around line 76. Also, while it is implicit that the wind, temperature and humidity data are corrected for height changes from snow accumulation/ablation, that is not explicitly noted until line 240. Perhaps a comment should be added in the introduction to the effect that "after correction for sensor errors and surface height change from snow accumulation/ablation, the wind, temperature and humidity data are corrected to standard heights for SEB calculations using Monin-Obukhovsimilarity theory."

This manuscript clearly fits the objectives and standards of ESSD.I think it should be published after only minor changes and consideration of the following specific and technical comments.

Specific Comments (referenced to line number)

68	A brief description here of what is done during maintenance visits would be useful. Some details are given later in 2.4. A problem we experienced with AWS high on the
	plateau is that the acoustic lens of the Cambel SR50 failed after a year or so in very cold conditions. Was that a problem with IMAU AWS and, if so, was it fixed during
	maintenance?
Table 2	I think that this table should be relocated after Section 2.2. Reading Table 2 first I was
	left wondering what sort of radiation shields were used, whether the anemometer model numbers refer to propellor or vane anemometers, etc. These are addressed in the
	text.
Table 2	What depth is snow temperature measured at? Is it also corrected for subsequent accumulation?
100	Riming or hoar frost deposition? Inland station sensors are usually affected by hoar frost deposition (ice crystals formed by direct sublimation of water vapour) rather than rime

(ice formed from freezing of supercooled liquid water). Coastal stations may suffer riming.

- 118 Does "hut temperature" mean "temperature inside the radiation shield"? I think the use of "hut" is inappropriate.
- 153 & 186 Largest radiation measurement errors probably occur with hoar frost deposition on the instruments. These events are flagged, but no corrections are made. An additional note regarding this might be added here.
- 314 & 332 Were thesonic anemometersused at the AWS14 and AWS05 site comparisonsseparate instruments, not part of any AWS?

Technicaland minor comments (referenced to line number)

10	This seems unnecessary as a reference as it just refers to the url given in the preceding
	line (https://doi.pangaea.de/10.1594)
51	"International Polar Year (IPY 2007-2008)"
54	"one AWS was installed at former"
Fig 1	Location labelling of AWS 04, 05, 06, 07, 08, 09 is not clear in the main picture, but is
	clarified in the inset
58	"CIRES and the the let Propulsion Laboratory"
59	"in SCAR Inlet"
62	"the Belgian Royal Meteorological Institute" or "the Royal Meteorological Institute of
	Belgium"
63	"Belgian Princess Elizabeth station"
Table 1	"and renamed as AWS20"
86	"a more compact and lower-power design"
87	"also use a R.M. Young"
Fig 3	Replace T_{hut} with T_{shield} on axis label. Replace "solar heating of the temperature hut" with
	"solar heating of the temperature shield" in caption
137	"was measured inside a passively ventilated radiation shield, not in the ambient air, and
	could include radiative heating error."
148	"the same as is done"
149	"vapour pressures in the radiation shield"
151	"values far a bove 100%."
166	"For each station we select"
170	"Near-neutral conditions are defined as when wind speeds are higher than 6 ms-1,
	relative humidity above 80%,"
Fig. 5	Shiftthis figureto after the "Pyranometer (short wave)" discussion
256 & 259	Riming or hoar frost deposition? Or either?
Table 4	Shift this Table to be with the text discussion of "Flagging"
277	"The time-averages of all measurements"
Fig 8a capti	on T is green, not red
Fig 8a capti	on SW is orange, not yellow
321	"effectiveness of the radiation shields."
329	"does not substantially differ from the reported"
331	"was never replaced after it's installation"
340	"less than 5% of the daily"
350	"0.08 m for b etween the type I/II stations"
373	This seems unnecessary as a reference as the url is also given