

## Response 2 (after technical corrections)

In the technical correction the following changes were made:

1. Figure 3 that incorrectly doubled Figure 4 was removed and captions of new figures 3 and 4 were corrected. Caption to (now) Figure 5 was modified and now refers to Figures 2, 3, 4. Changes were made for replacing the word "probe" with "collector" in several places.
2. Missing citations references were corrected and a couple of remaining citations that should be in parenthesis.
3. Świder geographical coordinates were corrected.
4. Figure 5 (the installation diagram) was corrected as wire connections were updated according to the description.

In addition, in the Appendix, line 241, it was corrected that Kalinowski had recreated the Physics Laboratory, not co-founded it (the information was checked). Years when the risk of railway electrification first appeared were corrected after checking sources, and citation was updated in Footnote 5. A difference between 1930 and 1950 installation was noted in Footnote 10.

## Corrected Response 1 with updated figure numbering (in bold)

Remarks of Editor:

*The manuscript describes the establishment of atmospheric electricity measurements at the observatory Swider in great detail. Although the corresponding data are lost, these details are worth to be preserved, and I tend to accept the manuscript for publication in HGSS.*

*However I suggest some additions.*

1. *Since the data had been destroyed in WWII. even some early results should be included, if possible. Perhaps some early and preliminary results are contained in later publications (Kalinowski, 1937b, 1939, or Kalinowska 1960, or Kalinowska-Widomska 1955).*
2. *It would be convenient for the reader, if a block diagram of the measurement installation, described in lines 133 to 150 can be sketched and included. Fig. 2 needs some explanations.*
3. *Section 4 is not really a "conclusion". It should be renamed as something like "The modern Swider Observatory". It should be mentioned that it is now called "Stanislaw Kalinowski Geophysical Observatory" and it should be clearly stated if the observatory still continues to observe atmospheric electricity parameters. In line 191 it it said that two instruments are still exist, but it is not clear, if they are still in use.*
4. *There are "?" in serveral places (lines 131, 206, 218, 304) which should be replaced.*

## Reply:

Thank you very much for indicating what this manuscript has lacked yet. Here are our replies to the points made.

1. Yes, Kalinowska-Widomska in her 1955 work analysed data from 1950-1951 (plus several months from 1952) and included results from year 1930. We add a plot of her results on the diurnal variation in Fig. 6.
2. A diagram of the measurements installation was prepared and shown in Fig. 5. Other publication will be used to obtain slightly better versions of Figs. 1 and 2. More description in the two captions was added, and references to the diagram.

3. The title of Section 4 was changed, and the section revised.

4. Some errors were missed upon compilation, and will be corrected. The errors concern missing citations: Harrison and Riddick, 2022 (Line 131), Olszaniec, 2024 (Line 206), Hurwic, 1956 (Line 218), Kalinowska, 1962 (Line 304). Moreover, the publication year of Kalinowska collection was incorrectly given as 1960 throughout the manuscript.

#### Additional reply to Editor and Referees:

There are some additional corrections in the text as the information in the cited sources was checked again, and new sources were identified and cited. New figures appeared, according to the suggestions. The translations used in the text have been also revised.

#### Remarks of Referee 1

*Thank you for this valuable paper with important material concerning early twentieth century atmospheric electricity measurements in Poland, and the associated motivation, problems and successes. The biographies of significant individuals are a bonus and humbling to read.*

*This work would seem to fit perfectly in the Special Issue on Atmospheric electrical observatories.*

*I have only a few points:*

- *The title is possibly confusing as it could refer to recent measurements. I suggest that "The first decade (1929-1939) of atmospheric electricity observations at Swider Observatory" would be clearer.*
- *Related, in the Abstract, first sentence: "In October 1929, measurements of the atmospheric potential gradient (PG) began to be routinely recorded at the Magnetic Observatory in Swider, Poland."*
- *Bringing atmospheric electricity measurements into magnetic observatories was also encouraged by Elster and Geitel, who wrote to the Carnegie Institution to suggest it. (See Fricke and Schlegel <https://hgss.copernicus.org/articles/8/1/2017/>, section 2). Given the importance of the Carnegie Institution, this would be worth including.*
- *Say potential gradient (PG) on first use, probably line 62, and then use the abbreviation PG throughout.*
- *Some question marks occur in the text. These need to be resolved.*

*Small points on the text:*

*L1 "The history of..."*

*L15 paragraph break needed after Kalinowski. Then "Professor Kalinowski..."*

*L19 "Specifically, Kalinowski had visited Pavlovsk, and, with the architect he employed, Łukasz Wolski, they visited Potsdam and Seddin several times (Linthe, 2023a, b)."*

*L21 "The beginning of continuous operation was delayed by the war, which trapped Kalinowski on the other side of the front. The Observatory was not..."*

*L29 "...after a brief but necessary..."*

L33. Do you mean that the magnetic work has been prioritised in what has been written about the Observatory, or that the magnetic work itself was prioritised?

L44 full --> fuller

L55 Make clear that it would be the magnetic work which would be threatened by the electric railway (as documented for Seddin <https://hgss.copernicus.org/articles/14/43/2023/> and Kew <https://hgss.copernicus.org/articles/15/5/2024/>).

L58 run --> ran

L69 what --> which

L70 "Prior to receiving the grant, construction of another observing house was arranged..."

L74 Wulf (if of the electrometer)

L90 "The Observatory was renamed but the years that followed..."

L93 field measurements of what kind? Magnetic?

L98 "Antoni Liliental's at the observatory

Footnote 8: "It was discovered that the magnetic Z component had been reported with an opposite sign, and all results for the affected period needed to be corrected."

L132 Harrison and Riddick 2023, fig 4.

L152 touting --> tensioning

L164 distortion

L178 confirmed

L218 Kalinowski's activity... this sentence and question mark doesn't make sense.

L222 encouraged

L264 "...the Observatory, Zofia Kalinowska gave support for atmospheric electricity observations continuation at..."

L277 "...-Curie, Henryk obtained..."

### Reply:

Thank you very much for all very useful remarks with which we agree, and polishing the language of this manuscript. It is very much appreciated, and the text was revised according to the suggestions.

Ad 1. The suggested title is clearer, and was changed with adding "Geophysical".

Ad 2. Thank you for the suggestion.

Ad 3. This is an interesting citation and we included it in the paper. We expanded the paragraph on Kalinowski's motivation.

Ad 4. and other points. Thank you for the corrections, the text has been revised. More information on Benndorf electrometer was added. Some question remarks remained in the submitted manuscript, and they should be citations of Harrison and Riddick (2022), Olszaniec (2024), Hurwic (1956) and Kalinowska (1962).

## Remarks of Referee 2

*This paper describes an early days of the atmospheric electricity observation at Swider observatory in Poland, and especially hard circumstances and great efforts of observatory staff are shown. I think it is worth to record this history and include the HGSS collection.*

*I have a few suggestions and questions as follows.*

*If available, it would be more valuable to refer even short documents clearly and include photos of the observation such as recoding papers, radioactive collectors and observatory staff. Readers across the globe would be difficult to access many of documents and references mentioned in this paper.*

*There are several parts that I am not sure when it happened. To avoid these, a year description should be added. See Technical Comments below for details.*

*As the Editor already pointed out, Section 'Conclusion' should be renamed, because it describes a story of the Swider and Belsk observatory in the latter half of the 20th century. But, it is ambiguous how and which observations were conducted at the two observatories.*

### *Technical Comments:*

*Line 22: When was the site ready? I guess in 1920?*

*Line 39: A position of a parenthesis is probably wrong. It would be '(Chodkowska, 2011)'.*

*Line 80: Same as Comment 6. It would be '(Kalinowski, 1932)'.*

*Line 122: Same as Comment 6. It would be '(Kalinowski, 1946)'.*

*Line 131: '?' is inserted.*

*Line 185: What does 'PAS' stand for? Probably, Polish Academy of Sciences?*

*Line 128: Same as Comment 8. '?' is inserted.*

*Line 304: Same as Comment 8. '?' is inserted.*

### Reply:

Thank you very much for suggestions on how to improve this manuscript, and pointing out the unclear statements and errors.

Kalinowski portrait photo was included in Fig. 1 A request was made to PAS Archives to use portrait photos of Zofia and Ewa Kalinowska and Wanda Drege, and we await an answer. We also added the diagram of the Benndorf electrometer from the work of Benndorf 1906 (Fig. 3), and added extra links. Dates were added where possible. The title of last section was changed. We have not added extra information about Belsk - it is a different story and a later period.

Yes, PAS stands for Polish Academy of Sciences. Sincere apologies for the questions marks that remained in the manuscript which should not happen. They appeared instead of citations of Harrison and Riddick (2022), Olszaniec (2024), Hurwic (1956) and Kalinowska (1962), in lines 131, 206, 218, and 304, respectively. The citations with wrong position of the parenthesis have been corrected - thank you.