

Dear Editor:

Here we send you the revised version of the manuscript. We would like to thank the referee for the helpful comments. We have taken them into account in the revised version. Please find below our answers to specific issues.

Best regards,

Paula Kornecki

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Abstract:

- "The growth of astrophysical data from science space missions, ground-based telescopes, and theoretical models" -> what data are produced by theoretical models? Also shouldn't it be space-borne missions instead of "science space"?

Ans: We changed *science space missions* for *space-borne missions*, and here with theoretical models, we are talking about simulations from theoretical models, so we wrote it explicitly.

- acronyms are introduced without an explanation (IVOA, FAIR, VO, OPUS);

Ans: We added each meaning

- "Here we shed light on ..." -> maybe better "In this contribution, we illustrate ..."?

Ans: We agree with the referee, we changed it.

- "a preliminary job" -> a preliminary pipeline or analysis?

Ans: What we presented is more than a pipeline, so now we tried to be more explicit in the abstract to make it clear.

- again, not clear what OPUS, VOPROV are.

Ans: We excluded it from the abstract and we presented them in the text below

You used gamma-ray data, but later will turn to  $\gamma$ -ray, please be consistent.

Ans: We homogenized all to gamma-ray

1. Introduction

- "archives and software tools, and to make them work interoperable" -> and to make them interoperable;

Ans: We changed it

- "In particular, this includes developing and evaluating VO standards to make the very-high-energy scientific data follow ..." -> which very high energy data? from which instruments?

Ans: We mean data from any very-high-energy facilities that adopts the standards. We added it in the text.

- "In this paper we discuss and analyse the state of the art of very high energy data ..." -> In this proceeding, we discuss and analyse the state of the art of very-high-energy gamma-ray data ...";

Ans: We changed it.

- then in the following lines you are using the expression "high-energy data", please be consistent. Or just use "gamma-ray data" to encompass both;

Ans: We use now "gamma-ray data" to encompass both high-energy data and very-high-energy data.

- "In section 4, we show an on the fly analysis" -> In section 4, we show an on-the-fly analysis;

Ans: Done.

- can you just add some attributes to the OPUS platform, to clarify what it is. e.g. is it a data-analysis platform? is it a data-dissemination platform? is it an archive?;

Ans: It is a job management platform, now we have clarified it in the text.

- "a description of the following steps" -> following steps of what? of the analysis you have demonstrated? of the larger issue of data standardisation? Not clear. You used gamma-ray data, but later will turn to  $\gamma$ -ray, please be consistent.

Ans: We mean our future work, we have clarified it in the text.

2. The uses of the standards in high-energy data

- "... can browse flux maps, search high-energy catalogues ... together with the manipulation of this data" -> can browse, search ... and even manipulate these data;

Ans: Done

- "Data can also be analysed with Gammapy by connecting it with OPUS." -> will be clear when it is clarified what the OPUS is;

Ans: We added more information here about the opus platform.

- "This data-trace back is essential" -> what is a "data-trace back"? the sentence does not read well;

Ans: We deleted "data-trace back" and we made a more detailed description of the provenance definition in the previous sentence.

3. How to quickly look at  $\gamma$ -ray data using VO tools

- "... the study of a source or a set of sources of high energy" -> the study of one or more high-energy sources;

Ans: done

- "... to take a first look at the available observational data and scientific products ..." -> to take a first look at the available observational data on these sources..."

Ans: Done

4. Online analysis with Gammapy and OPUS based on standards

- "An analysis can be performed using Gammapy" -> of which data? You said you loaded 4 types of data (from 4 catalogues) in the previous section;

Ans: We mean Cherenkov gamma-ray data, we have clarified it in the text.

- "Gammapy is a community-developed, open-source Python package now widely used by the community" -> community twice in the same sentence;

Ans: We excluded "by the community"

- "by connecting it with an OPUS platform" -> with the OPUS platform?

Ans: yes, we changed the sentence to "Data from the H.E.S.S. DL3 DR1 may thus be analysed with Gammapy by running it on the OPUS platform" to be more precise with the H.E.S.S. data.

- "in H.E.S.S. public data release by given its sky coordinates as inputs parameters (ra and dec)." -> in the H.E.S.S. publica data release by giving its sky coordinates as input parameters;

Ans: We changed the sentence to "covered by the H.E.S.S. DL3 DR1, simply by giving its sky coordinates as input parameters (ra and dec)."

- "applied to PKS 2155-304." -> derived from?

Ans: Derived from supplying the PKS 2155-304 coordinates to the job. We have clarified it in the text.

- "we include VOPROV calls inside the job script" -> we use the VOPROV routines from within the job script;

Ans: Done

5.

- "IVOA standards is a continuous evolution cycle" -> IVOA standards are;  
- "with the knowledge of a single tool that follows the standards such as Gammapy" -> which standards? Does Gammapy follow VO standards?  
- "From the different works that report analysis of H.E.S.S. sources, a defined set of parameters used to analyse different types of sources emerges." -> not clear what you want to say with this. Maybe that a particular analysis methodology / type / class is often used in H.E.S.S. analyses that can be implemented in OPUS jobs?

Ans: We rewrite these first two paragraphs to clarify the concerns that the referee points out in these last three comments.