Page 2
* Could you add the lower energy threshold of the main TA SD array.
   • "above $10^{18.2}$ eV" is added between "TA SD data is shown" and "in Fig.2…" since it depends on how to treat SD data.
* Question in …rearranged to view ~120∘. is this elevation or azimuthal angle?
   • This is azimuthal angle, so I added "in azimuthal angle."
* Question in … put into the observation → do you mean, installed into the observatory? or put in operation?
   • "were put into" was changed to "started."

Page 3
_____

* There is too much blank space in this page.
* Suggestion: are denoted in red → are displayed with red symbols
* Suggestion: denoted in green → denoted by green symbols
* In Fig. 1, caption, six TA Communication towers are mentioned (pink diamonds), hower, only five of them are shown in the plot.
   • For the above suggestions and a question on page 3, the plot was modified and the symbols in the plot are explained on the right side of the plot. Therefore the caption was simplified as follows:
      • The layout of TA, TALE, and TAx4. The symbols in the layout are explained on the right side of the plot. The number in parentheses indicates the number of detectors.

Page 4-5
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* four years of data by the TA SD → four years of data from the TA SD
* uncertainty of energy determination → uncertainty in the energy determination
* Comment: Section 2 starts with the TA spectrum from 2012-2013. Then the text suddenly changes to the recent TA spectrum. Could you please add a small text to explain why did you introduce the text about the previous TA spectrum?
* In this regard, one question: did you reduce the systematic uncertainties in the new TA spectrum in comparison with the previous one from 2012-2013?
   • Based on the above four comments, I removed "The TA collaboration has … was 21%." since there is nothing new for this part.

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* Suggestion: expected one for the spectral index between → expected one from the extrapolation of the flux with the spectral index between
   • Modified as suggested
* It is not clear what you mean by "TAx4 result means the result using data of additional SDs for TAx4". Did you mean data from the TAx4 array with 500 SDs? or an upgrade of this array with more stations? Could you please explain that in the text?
   • It means data from the TAx4 array with 257 SDs. The sentence was modified as follows:

        • Hereafter, when referring to TAx4 results, it means results using only data from 257 SDs deployed for TAx4 in 2019.

* Monocular energy spectrum → The monocular energy spectrum

      • Modified as suggested.

* and energy Spectrum → and the energy spectrum

      • modified as suggested.

* with Auger spectrum in blue and TA SD spectrum in green. → with the Auger spectrum in blue and the TA SD spectrum in green. (Please, also add references to the Auger spectrum and the TA SD spectrum used in Fig. 2b. For the auger spectrum the reference [17] does not seem to be the right one because of the year.)

      • modified as suggested.

      • [17] was replaced to the one in the current version ([15]).

* Fig 2b: The legends of the axes are too small to be read. Could you please increase the size of the legends?

      • The size of the legends was increased.

* after the ±4.5% → after a ±4.5%

      • modified as follows:

           • +-4.5% rescaling → rescaling the energies by +4.5% for Auger and -4.5% for TA

* to get agreement → to get an agreement

      • modified as suggested

* for declinations of $\delta<24.8°$ and $\delta>24.8°$ –> for declinations of $-16°°<\delta<24.8°$ and $24.8° < \delta < 90°$.

      • modified as suggested

* In "TA Fig. 4a shows the TA combined spectrum", could you please explain what do you mean by combined spectrum?

> • In the main text, "the TA combined spectrum" was modified to "the TA combined spectrum, which is made by combining the TA SD and TALE FD spectra".

> • In Fig. 4(left) caption, "The TA combined spectrum in black using" was modified to "The TA combined spectrum in black, which is made by combining".

* Suggestion: The range of energies below $10^{18.2}$ eV is covered by the TALE FD. We see three features: … The range above $10^{18.2}$ eV is covered by the TASD.
→The range of energies below $10^{18.2}$ eV is covered by the TALE FD, while the energy range above $10^{18.2}$ eV is covered by the TA SD. We see three features: …

> Modified as suggested.

* We see three features: → We see three features in the spectrum:

> • Modified to "We see three features in the energy spectrum".

* The range → The energy range

> • Modified as suggested

* within systematic uncertainty → within systematic uncertainties

> • Modified as suggested

Page 6
* Fig. 5: The top titles of the figures can not be read. Please increase the size of the top titles.

> • The size of the top titles was increased.

* Fig 5, captions: The labels (a), (b) and (c) are not indicated in the figure.

> • Decided to use (left), (center), and (right) instead of (a), (b), and (c).

* Fig. 5: number of events by experiments → number of events observed by the experiments.

> • Modified as suggested.

* Suggestion: Add reference [19] in fig. 5.

> • Added reference currently [17] as suggested.

* depth of maximum → depth of shower maximum

> • modified as suggested.

* 10 years were shown in Fig. 6 → 10 years are shown in Fig. 6

> • Modified as suggested.

* QGSJET II-04 [24] proton … [23] → QGSJET II-04 [24] for proton … primaries [23]

> • Modified as suggested.

* With reference to the sentence "We need more statistics to clarify the feature above 10^{19} eV", do you mean the feature in the Cosmic ray energy spectrum of figure 5? Please explain.

> • Modified to "We need more statistics to clarify the feature of Xmax above 10^{19} eV, for example, to more accurately measure the values of the mean Xmax and the width of Xmax".

*In "The proton and helium models", do you mean "The model predictions for proton and helium primaries?"

> Yes, so I modified as suggested.

* Fig. 6: Please add the reference of the plots.

> • Added the reference currently [22].

* Caption of fig. 6: could you please adda which figure (left/right) corresponds to (a/b)?

> • Decided to use (left) and (right) instead of (a) and (b).

* Caption of fig. 6: cosmic-ray energies → cosmic-ray energy

> • Modified as suggested.

* Suggestion: Reconstruction bias of about −10 g/cm−2 is not corrected → The result is not corrected for a bias of about −10 g/cm−2 .

          • Modified to "The result is not corrected for a bias of about −10 g/{cm^2}".

* The meaning of the sentence "The mean X_{max} from the TALE hybrid data appears to connect the TA mean X_{max} smoothly above 10^{18} eV" is not clear. Could you please work out this sentence to clarify its meaning?

          • The meaning is as follows:

                • The mean Xmax and the slope of the Xmax elongation ratio for the TALE hybrid analysis are consistent with those for the TA hybrid analysis at around 10^{18.2} eV.

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—————————

* In fig. 7, are you showing results from [25] or [21]?

* Suggestion: Add a reference for fig. 7.

          • For the above two comments, currently [19] is added as a reference for fig. 7.

—————————

* Caption of fig. 7: for proton and iron MC primary elements → values for proton and iron MC primary elements, using QGSJET-II-04,

          • Modified as suggested.

* Question for fig. 7: Why do you need the predictions of QGSJET-II-04 for protons for the calibration of the energy of the EAS in the case of the TALE hybrid data? Why do not you use the FD measurements from TALE?

          • "estimated using QGSJET II-04 proton model" was removed in order to avoid an unnecessary attention although QGSJET II-04 proton model was used for the missing energy correction.

* Fig. 8: Is it possible to increase the size of the labels?

          • The size of the labels was increased.

Pag 8

* New excess → A new excess

          • Modified as suggested.

* Fig. 9: Is it possible to increase the size of the labels?

          • The size of the labels was increased.

* TA confirmed … eV. → TA confirmed … eV in the spectrum of UHECRs

          • Modified as suggested.

* shoulder feature → shoulder feature in the spectrum

          • modified as suggested.

* spectrum measured with the → spectrum with measurements of

          • If we describe like "with measurements of A", probably "A" can be "cosmic rays" or "intensities of cosmic rays.", so I modified differently as follows:

                • spectrum measured using the data observed with the TALE FD

*

* consistent with light composition such as the QGSJET II-04 proton and helium. → consistent with a light composition, in particular, with predictions of QGSJET II-04 proton and helium.

- modified as suggested.

* In the sentence: "We need more statistics to clarify the feature above 10^19 eV", dou you mean the feature in the energy spectrum?

- I mean the feature of the Xmax, so I modified as follows:
  - We need more statistics to clarify the feature of Xmax above 10^19 eV.

* data obtained by the TA SD → observation with the TASD

- modified as suggested

* This sentence is not clear "scanning the sizes of circles for oversampling these events". Could you please work out this sentence to clarify its meaning?

- As the summary, I think it is ok just to state the maximum pretrial significance, so I modified as follows:
  - We found a maximum pretrial significance of 5.1 sigma when using a circle with a 25-degree oversampling radius.
- In the main text, I modified "The maximum significance … be expected)." as follows:
  - We found the maximum pretrial significance of 5.1 sigma at R.A.=144.0^\circ and Dec. = 40.5^\circ for the oversampling circle with a radius of 25^\circ after searching for the maximum significance in circles with all grid directions and five different oversampling radii.

* This sentence is not clear "The significance appearing in an isotropic cosmic-ray sky". Could you please work out this sentence to clarify its meaning?

- Modified as follows:
  - The post-trial significance of detecting such clustered events by chance in the isotropic arrival distribution is estimated to be 3.2 sigma.

_____

* Evidence for → Evidences for
* is seen such as declination dependence of spectrum cutoff → can be seen, for example, as a declination dependence of the cutoff in the spectrum

- For the above two comments, I modified as follows:
  - Evidences for some features of anisotropy are found, for example, as a declination dependence of the cutoff in the energy spectrum.

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* and new → and as a new

- modified as suggested.

* with a bit lower → using a slightly lower

- modified as suggested.

* and add two FD stations → and we also added two FD stations?

- Modified as follows:
  - we proposed a plan, which we call TAx4, to quadruple the TA SD aperture and add two FD stations.