

# Osservatorio Pierre Auger - News



## Antonella Castellina

INFN Sezione di Torino & OATo/INAF Torino, Italy

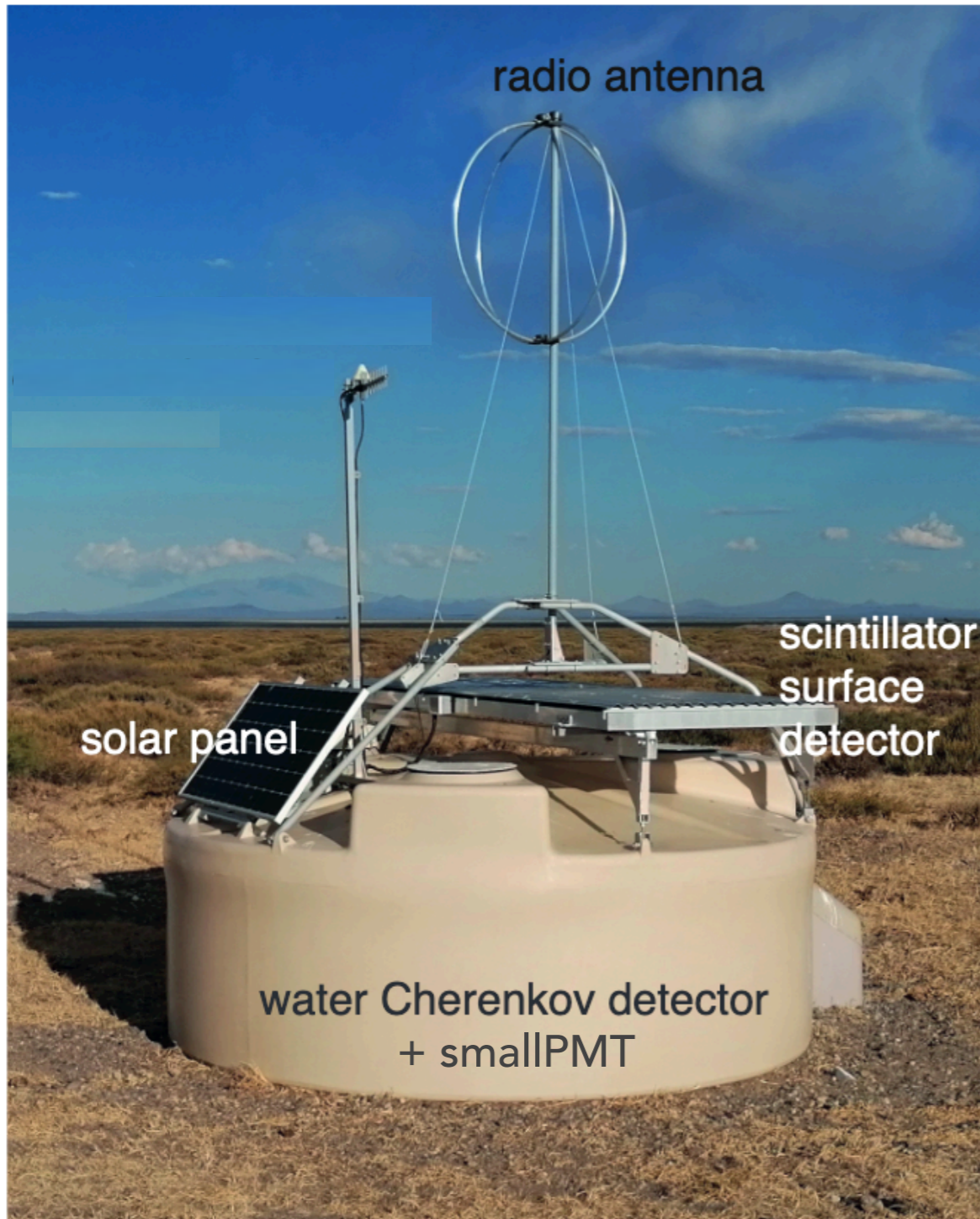
Roma, 17 Luglio 2023

➔ AugerPrime status

➔ Review

➔ Elections

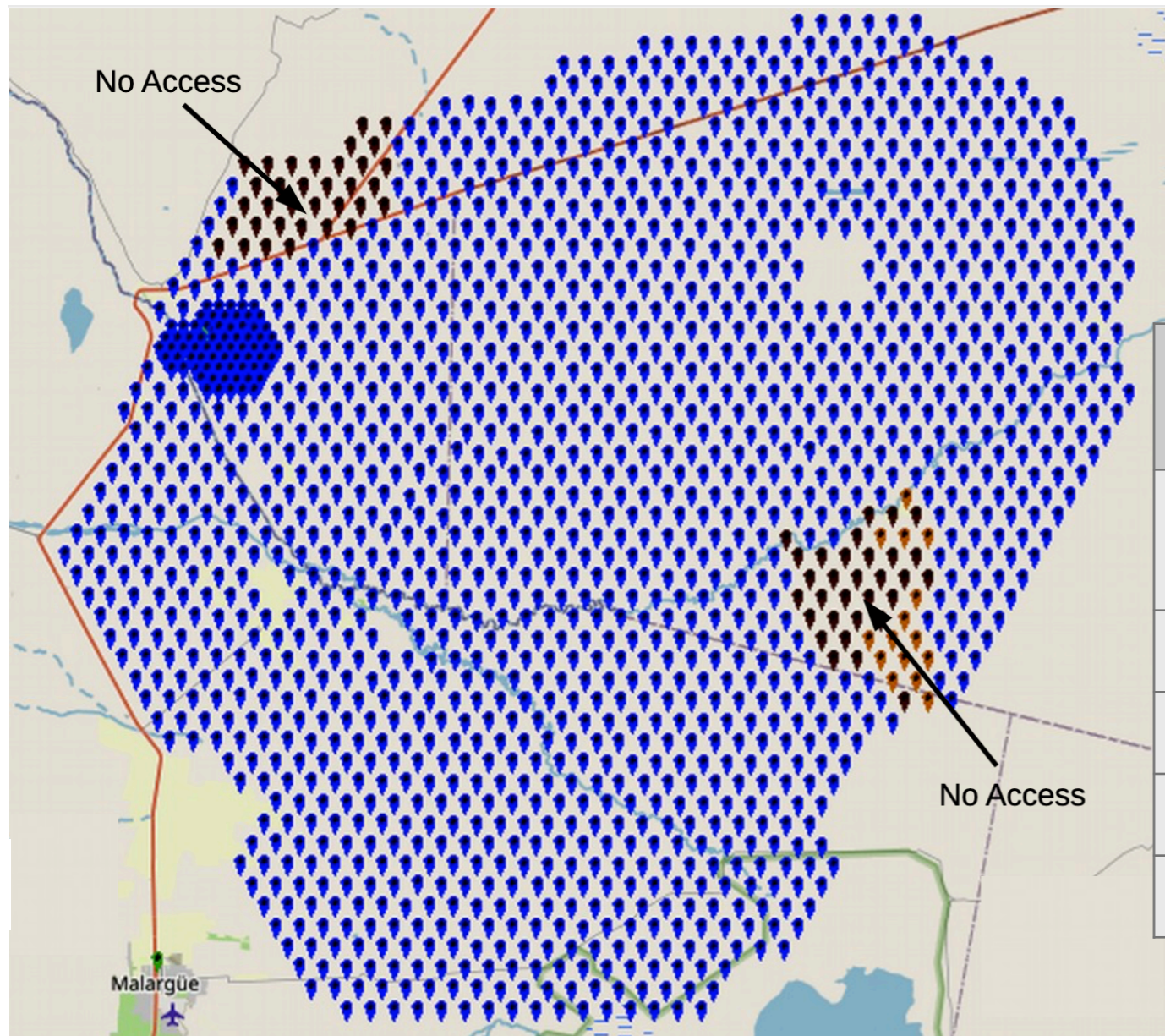
# AugerPrime - i rivelatori



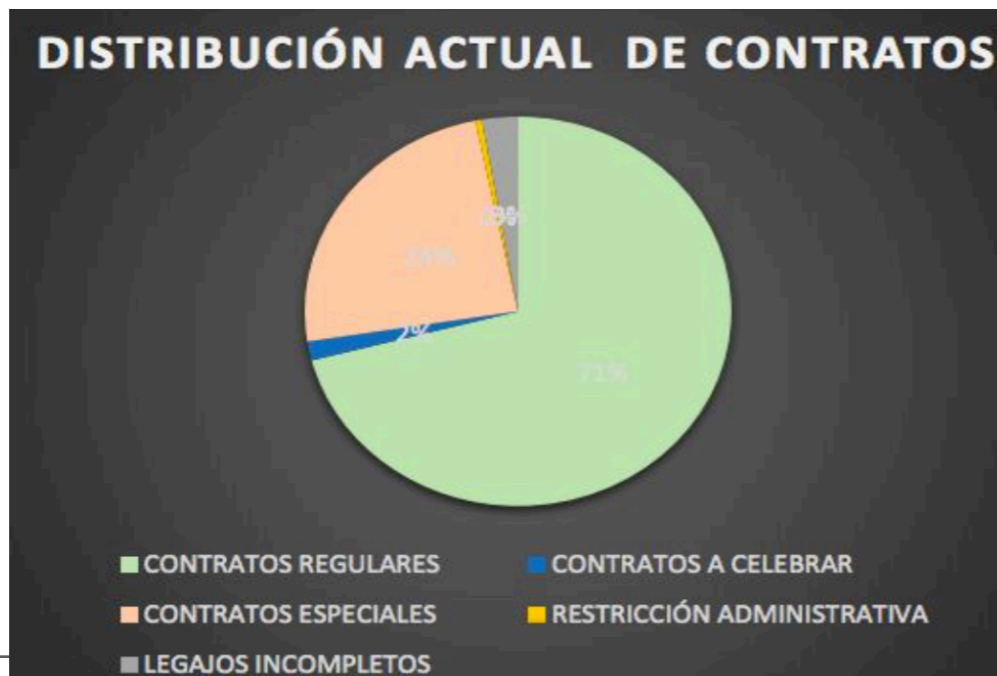
- ➔ AugerPrime preliminary Design Report (2016)  
arXiv:1604.03637
- ➔ AugerPrime: the Pierre Auger Observatory Upgrade,  
UHECR2018, EPJ Web of Conf. 210 (2019) 06002.



# Installazione



	<i>installazione</i>	<i>Staff locale</i>	<i>completamento</i>
<i>UUB</i>	1580 [+80 non acc.]	7	✓
<i>SPMT</i>	1493 [esclusi bordi]		✓
<i>SSD</i>	1493 [esclusi bordi]	(8)	✓
<i>RD</i>	38/1493	6	Feb 2024
<i>UMD</i>	36/61 [SD750+SD433]	7	Feb 2025



50 prima del 2035  
66 dopo il 2035



**MATÍAS PARASECOLI**

ALDANA LÓPEZ

DANILO ESPINOZA

GABRIEL DÍAZ

MATÍAS ROJAS

**NICOLAS GORDILLO**

ANDRÉS TRAVAINI

**UUB+sPMT+SSD-PMT Team**



**BRUNO MOLINA**

**GABRIEL BUCCA**

JOEL IBARRA

CARLOS GÓMEZ

JOSE FERRADA

NEIBER CASTRO

**RD Team**



MAXI MACIEL

NICOLÁS LEAL

LUCIANA TORRES

GUSTAVO RÍOS

GABRIEL MORALES

AGUSTIN MORALES

**NICOLAS SEPÚLVEDA**

**UMD Team**



**Ricardo Sato**  
Science Operation



**Fabian Gobbi**  
SD Observer

**COORDINATORS**



**Anton Moroz**  
FD Observer

# Commissioning

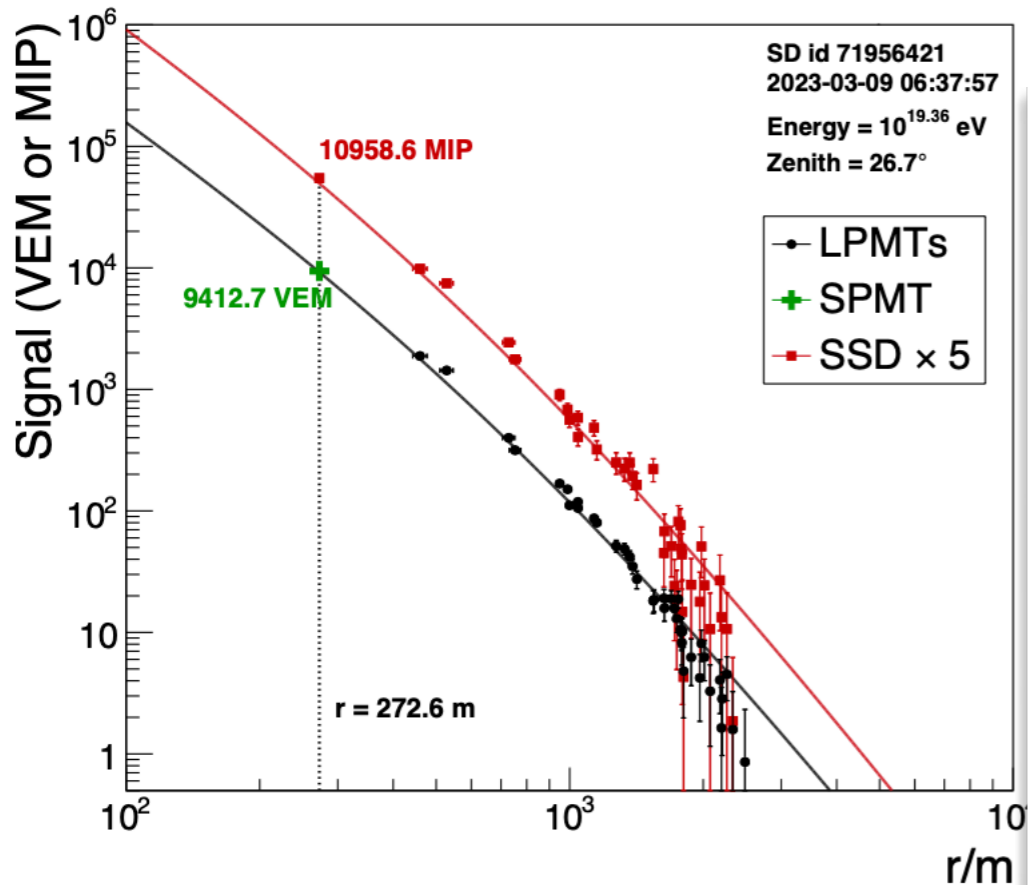
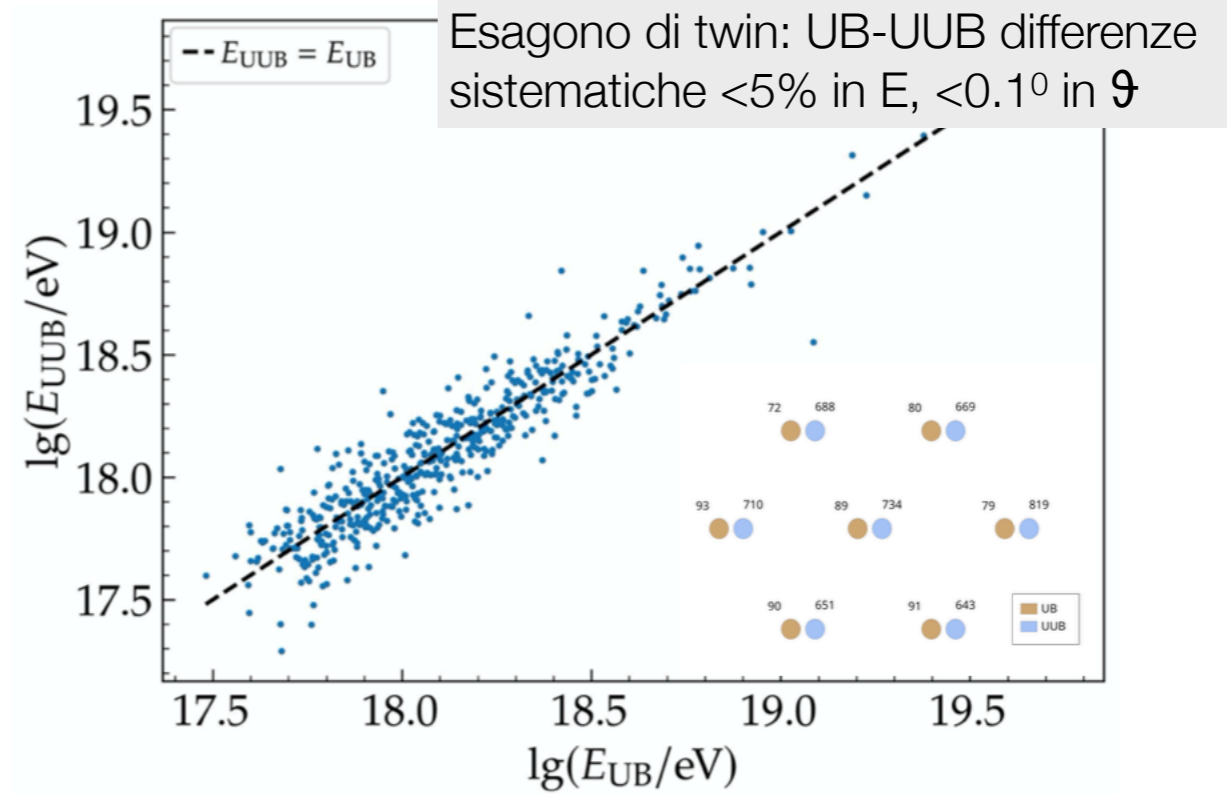
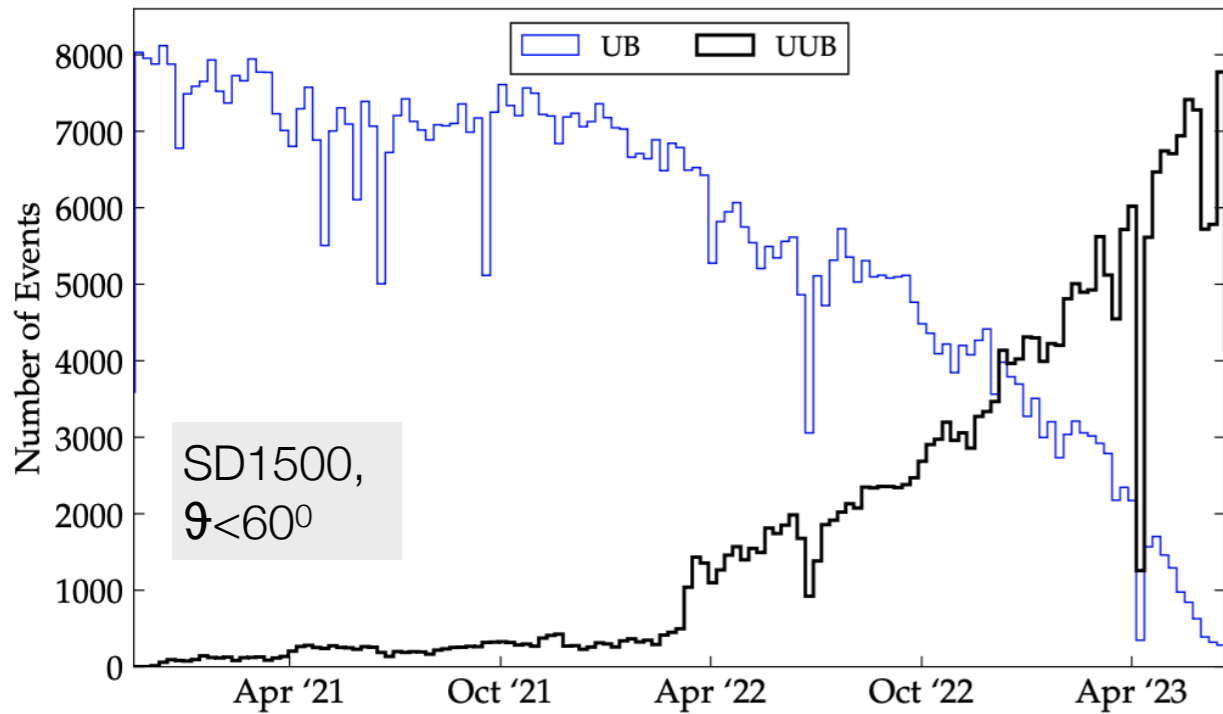
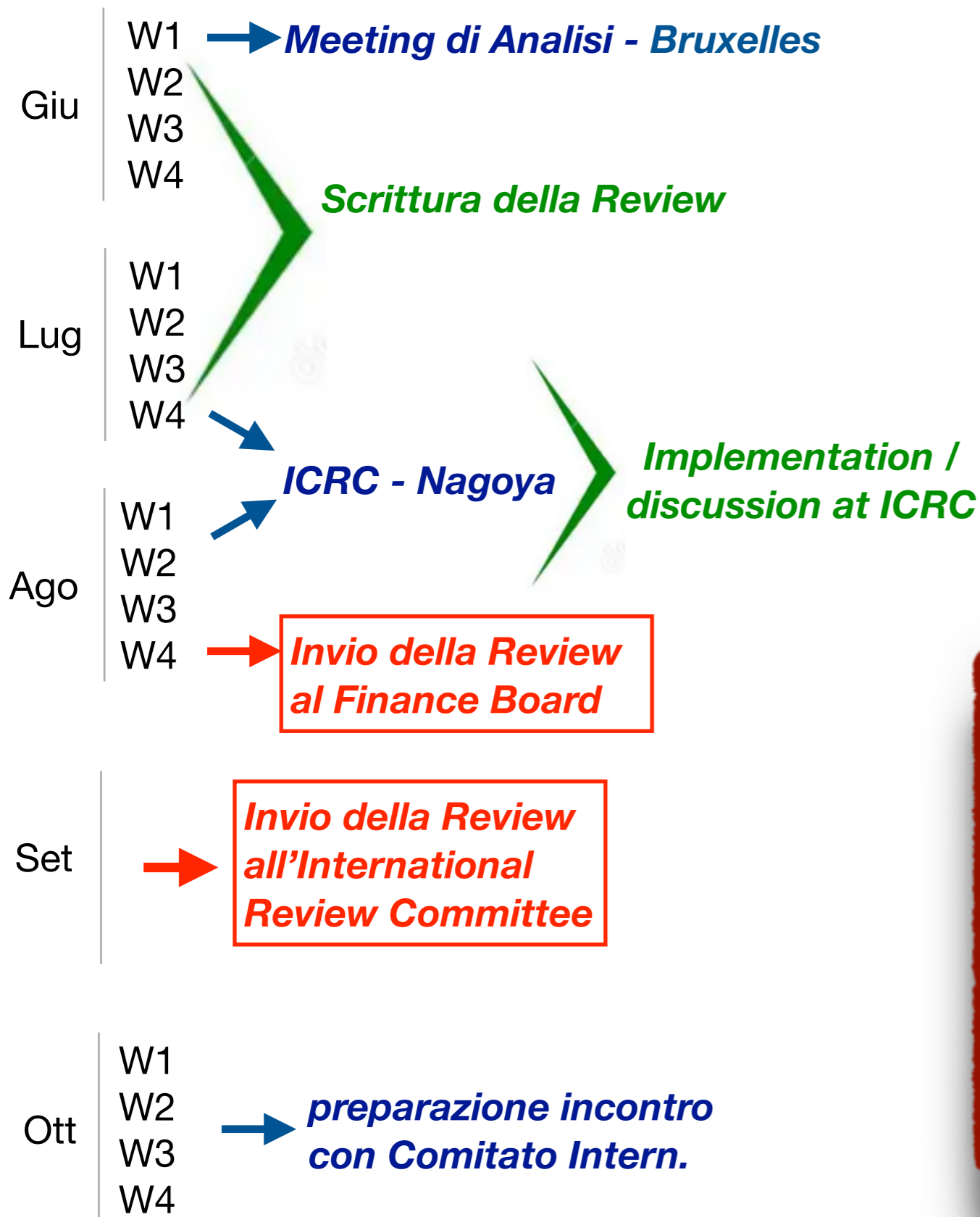


Table 2: Expected number of events for 10 years of data taking in the AugerPrime configuration. For SD-1500 are considered events up to zenith angles of  $\theta = 60^\circ$ . Horizontal air showers ( $60^\circ < \theta < 80^\circ$ ) add about 30% to the exposure.

$\log_{10}(E/\text{eV})$	SD		FD		RD
	433	750	1500	hybrid Cherenkov	
16.8	118000			48000	
17.5	3700	81000		4400	
18.0	270	5600		13000	
18.5	24	460	106000	3000	
19.0	5	88	13400	650	3000
19.5			1000	50	310
19.8			100	$\sim 5$	23
20.0			12	$\sim 1$	$\sim 3$

# Timeline



**Richiesta:** estensione dell'International Agreement per prolungare la presa dati di 10 anni

## **Finance Board:**

- comitato internazionale di review, col mandato di verificare l'installazione e il funzionamento di AugerPrime e il science reach
- report del Comitato al FB di Novembre

Agenzie

## Novembre :

9-10 Review meeting a Malargüe con i membri del Comitato Internazionale

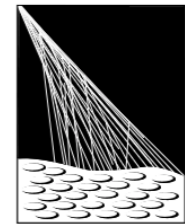
12-17 Meeting della Collaborazione

28-29 Finance Board :

report dei Reviewers e prima risposta

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PIERRE  
AUGER  
OBSERVATORY

## Report for the AugerPrime Review 2023

Pierre Auger Collaboration

July 16, 2023

**Comitato Internazionale di 8 membri**

Chair: Francis Halzen

Paolo Lipari e Bruna Bertucci per INFN

# News

## FAIR (Findable, Accessible, Interoperable, and Reusable)

### Data Release

2021: 10% vertical SD1500 and Hybrid showers (01/2004 - 08/2018)  
100% scaler data and weather stations (up to 12/2020)

2022: 10% SD1500 inclined showers (01/2004-08/20018)

2023: 10% oSD750 (01/2004-08/2018)  
+ ELVES & MC

**2024: 30% data up to end of Phase 1 (01/2004-12/2021)  
3 years latency**

*V. Scherini, M. Buscemi*



<https://opendata.auger.org>

Number of downloads from **Zenodo**: 302

DOI: [10.5281/zenodo.4487613](https://doi.org/10.5281/zenodo.4487613)

### Code of Conduct and Ethical Behaviour of the Pierre Auger Collaboration<sup>1</sup>



Jaime Alvarez Muñoz (USC)



Carola Dobrigkeit (UNICAMP)

### The Pierre Auger Collaboration Impact Award

The Pierre Auger Collaboration Impact Award (in short: Auger Impact Award) is dedicated to people who have spent a significant amount of their time on technical developments that have a very large impact on the functioning of the detectors or on data analysis.

**2023**

#### Selection Committee:

SC: Bruce Dawson, Lorenzo Cazon  
DC: Corrine Berat, Francesco Salamida

+  
**Martina Bohacova**  
**Markus Roth**



# Elezioni

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**Marzo**: Search committee (5 persone) installato dai Chair del Collaboration Board

**Aprile-Giugno** : Fase di consultazione, feedback e nomine

**Giugno-Agosto** : contatti con i potenziali candidati

**Ottobre** : il Search Committee fornirà ai Chair del CB la lista dei candidati

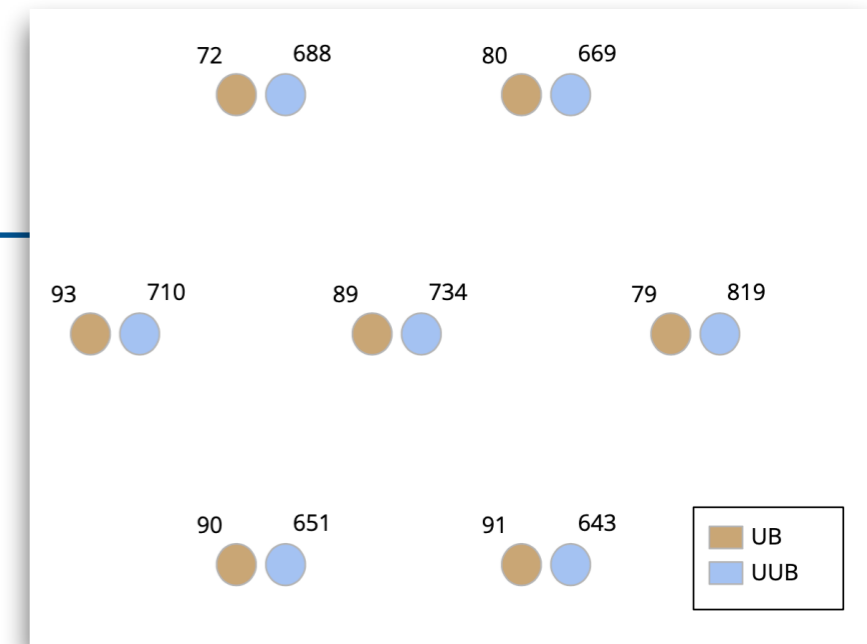
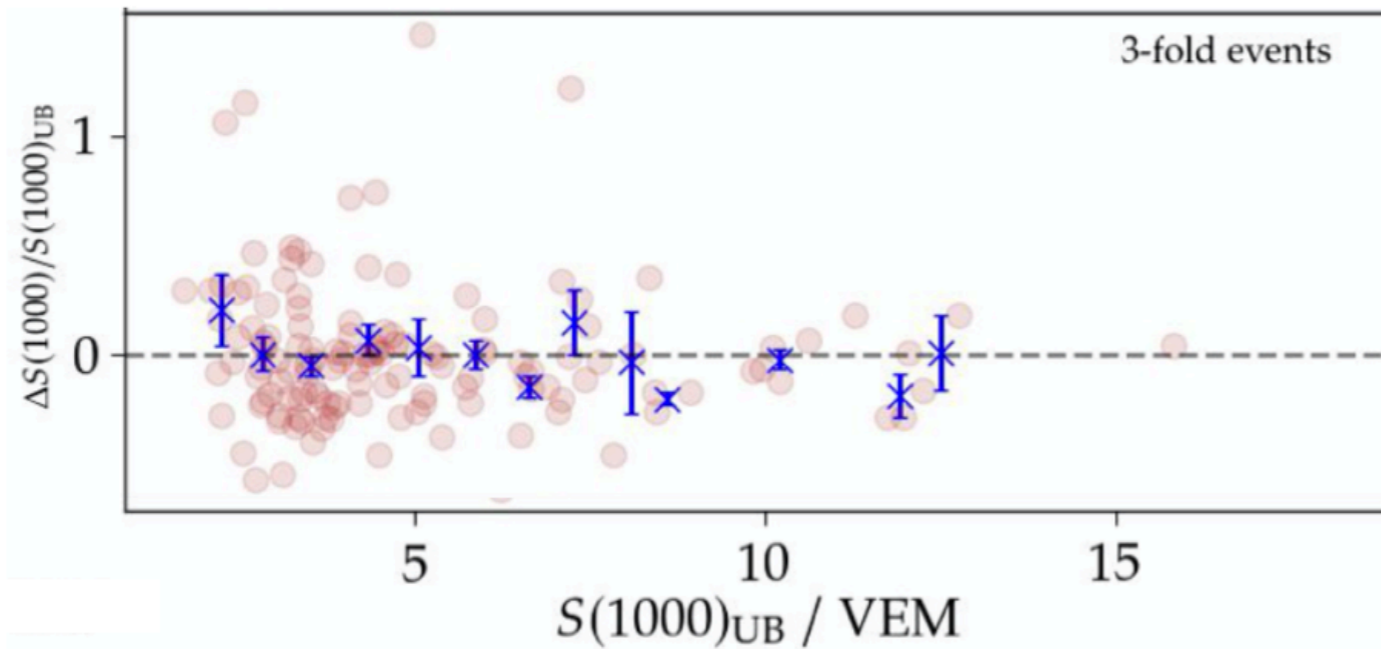
**Novembre** : meeting in-person a Malargüe, elezione degli spokespersons (CB=45 membri)



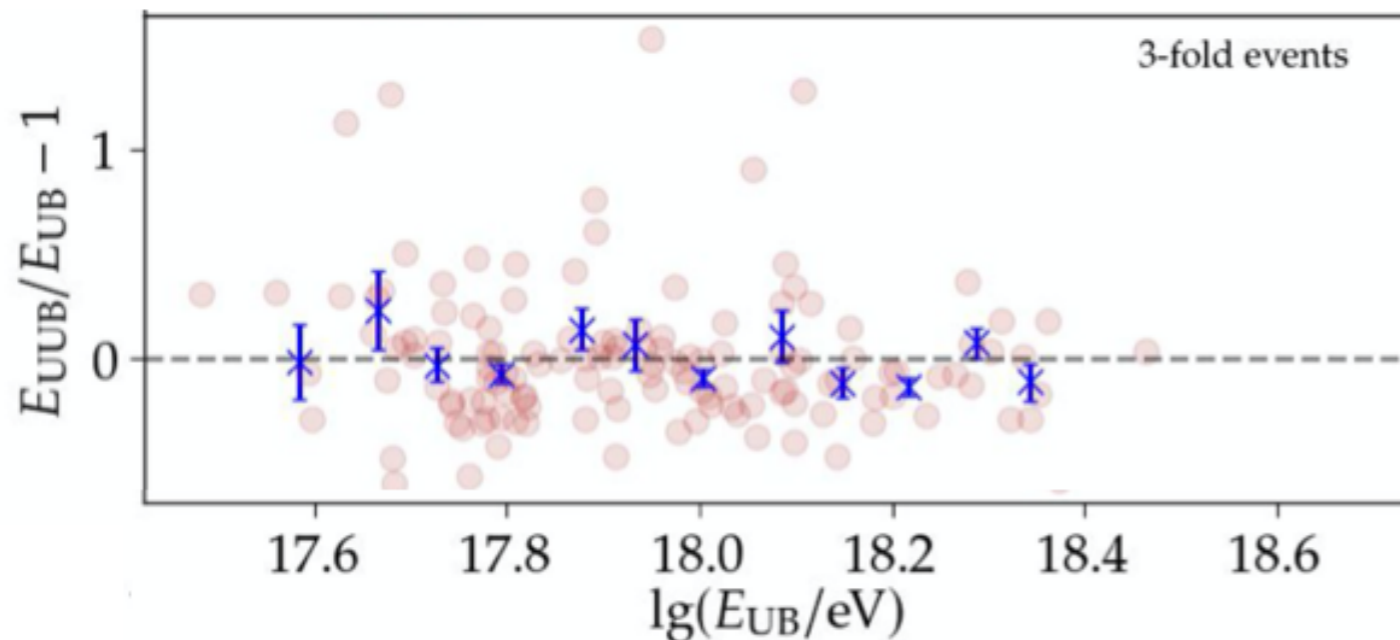
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Backup slides

# Compatibility of WCD-UB and WCD-UUB

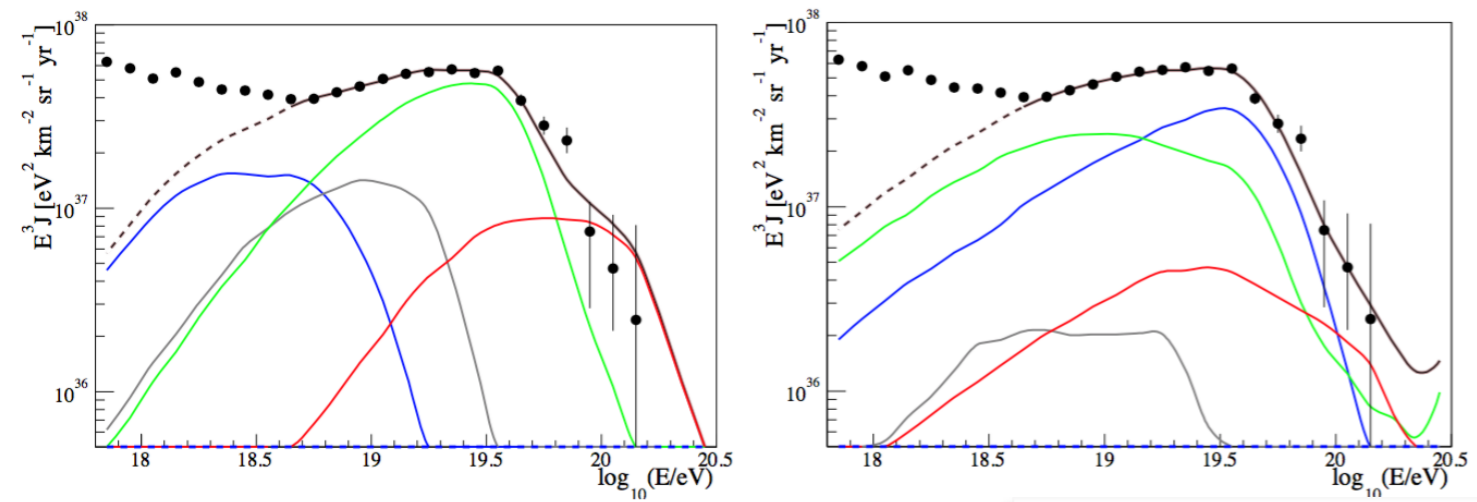


- Overall,  $S(1000)$  reconstructed with UUB is **unbiased** with respect to UB.



- Energy reconstructed with the UUB stations are unbiased relative to UB stations.
- Resolution  $\sim 35\%$ , should improve for events with larger multiplicity and larger  $S(1000)$
- More studies on angular resolution and shower core ongoing

# Discrimination of astrophysical scenarios with AugerPrime

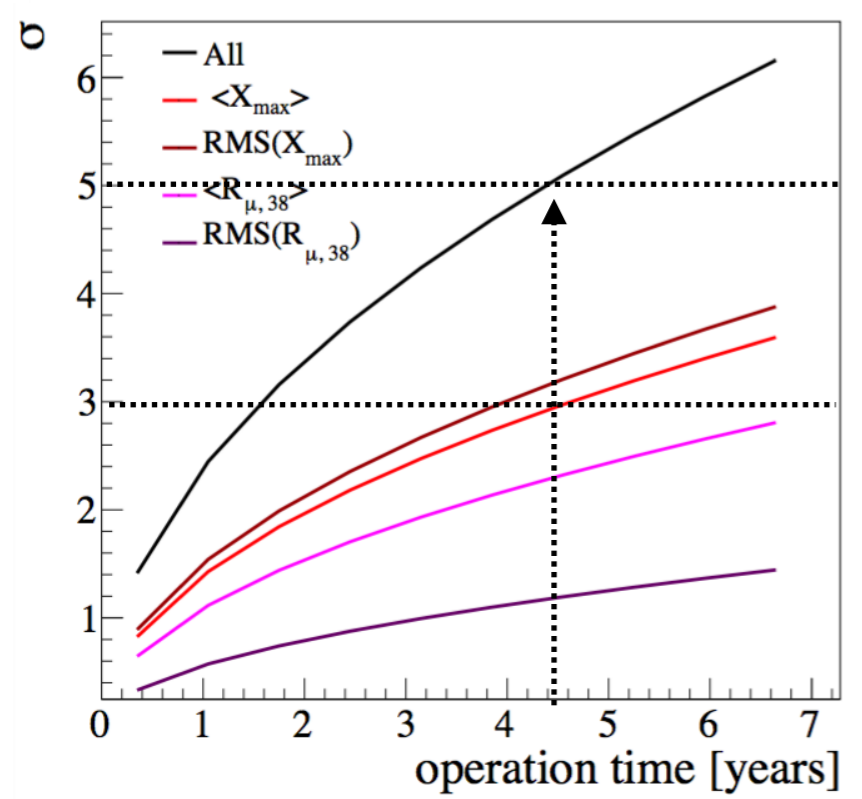


Considering two different benchmark scenarios

- 1- maximum rigidity model
- 2- photodisintegration model

we can

For a given scenario (here n.1), foresee the possibility to tag a fraction as small as 10% of protons at the highest energies with significance  $\sigma$



evaluate the discrimination power for the two scenarios with the measure of  $X_{max}$ , or of muons

