

KCDC – the KASCADE Cosmic Ray Data Centre and its Development to a Global Analysis and Data Centre in Astroparticle Physics

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Karlsruhe Institute of Technology



Astroparticle Physics

Particle Physics



Astrophysics

Astroparticle Physics

Particle Physics

Astrophysics

Neutrinos

Cosmic Rays

**Dark
Matter**

**Gamma
Astronomy**

**Gravitational
Wave**



Astroparticle Physics

Particle Physics

Astrophysics

Neutrinos

Cosmic Rays

Dark
Matter

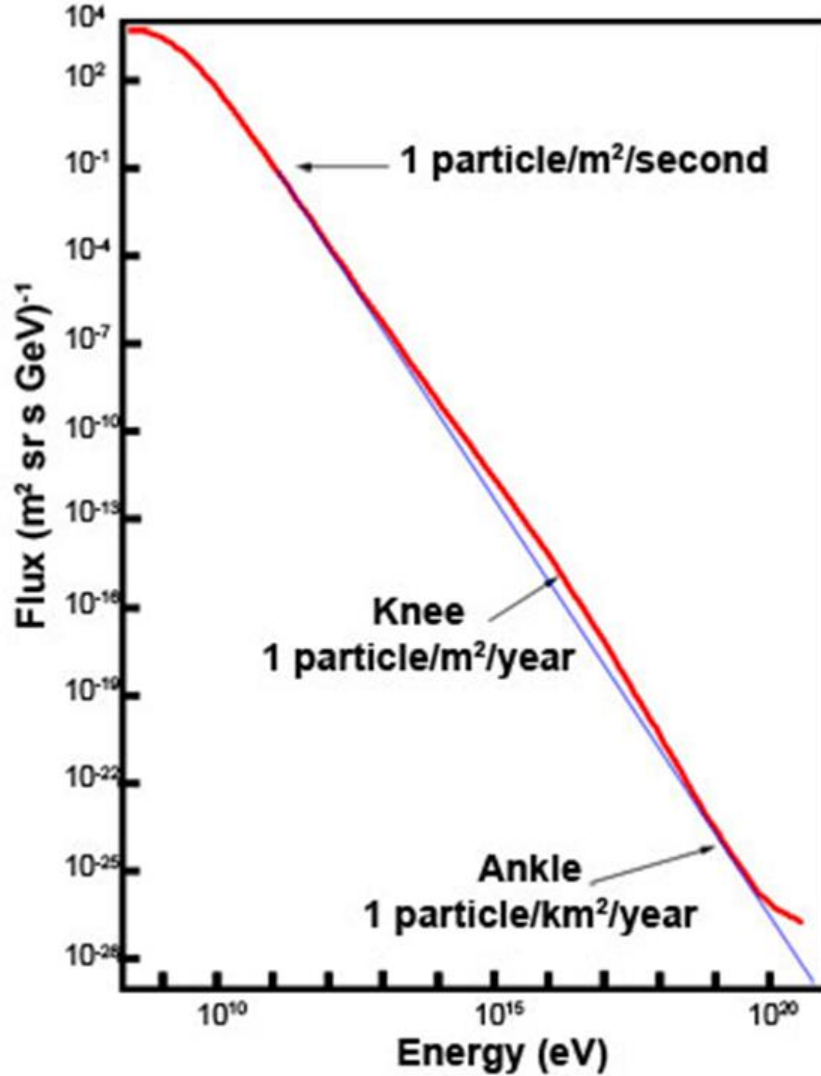
Gamma
Astronomy

Gravitational
Wave



Cosmic Rays



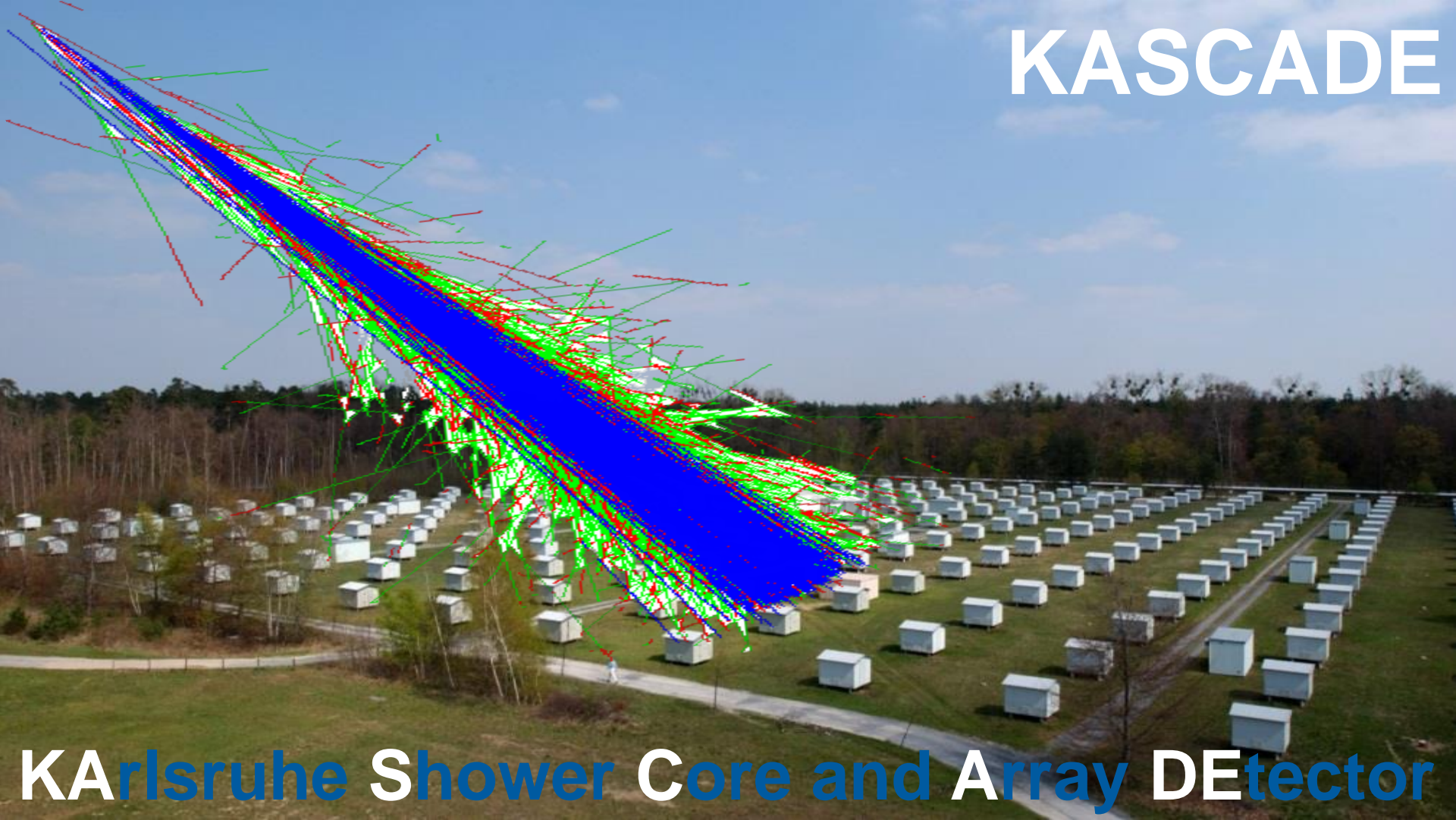


Flux of Cosmic Rays

Extensive Air Showers

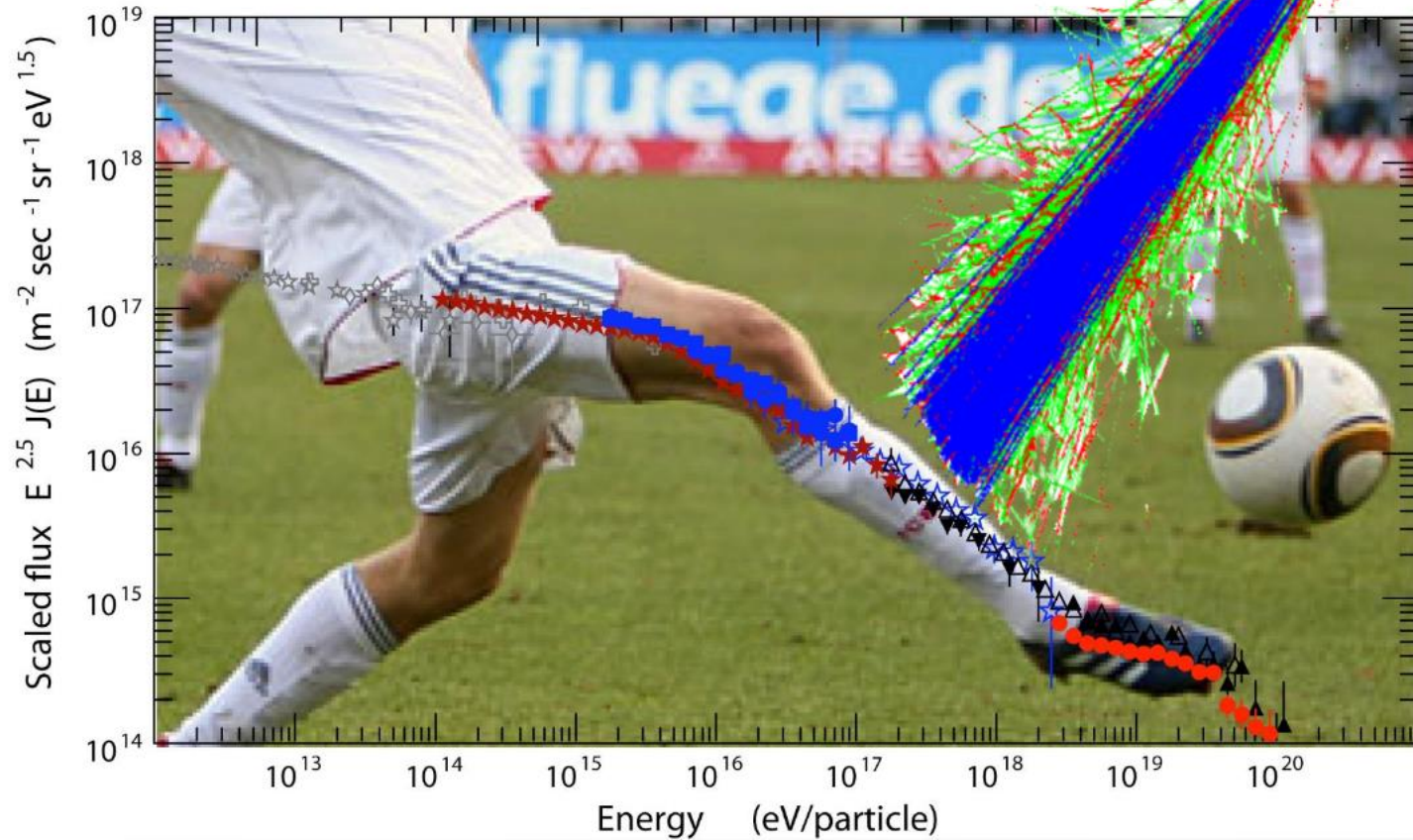


KASCADE



KARlsruhe Shower Core and Array DETECTOR

Fruitful Achievements



<https://kcdc.iqp.kit.edu/>

A web-based platform to provide scientific data for the general public



<https://kcdc.i kp.kit.edu/>

A web-based platform to provide scientific data for the general public

To archive original research data such as from KASCADE

To offer long-term scientific data for community and students

The screenshot shows the KCDC website interface. At the top, there is a navigation bar with links for 'KIT', 'KIT | IKP | HOME', 'Impressum', 'admin', and 'logout'. The main header features the KIT logo and the KCDC logo. Below the header, there is a 'Welcome to KCDC' section with a brief description of the project's aim: 'The aim of the project KCDC (KASCADE Cosmic Ray Data Centre) is the installation and establishment of a public data centre for high-energy astroparticle physics based on the data of the KASCADE experiment. KASCADE was a very successful large detector array which recorded data during more than 20 years on site of the KIT-Campus North, Karlsruhe, Germany (formerly Forschungszentrum, Karlsruhe) at 49.1°N, 8.4°E, 110m a.s.l. KASCADE collected within its lifetime more than 1.7 billion events of which some 433.000.000 survived all quality cuts and are made available here for public usage.' Below this text is a large image of the KASCADE detector array in a snowy field. The page also includes a sidebar with a navigation menu and contact information for the Institute for Nuclear Physics (IKP) at KIT Campus North.

KIT
Karlsruhe Institute of Technology

KASCADE
KASCADE Cosmic Ray Data Centre (KCDC) / Open β

KCDC Homepage
KCDC Motivation
KCDC Regulations

Information
Announcements
FAQs

User Account
Data Shop
Simulations
Spectra
Publications
Report a Bug
Education/Lehre

Welcome to KCDC

The aim of the project **KCDC** (KASCADE Cosmic Ray Data Centre) is the installation and establishment of a public data centre for high-energy astroparticle physics based on the data of the KASCADE experiment. KASCADE was a very successful large detector array which recorded data during more than 20 years on site of the KIT-Campus North, Karlsruhe, Germany (formerly Forschungszentrum, Karlsruhe) at 49.1°N, 8.4°E, 110m a.s.l. KASCADE collected within its lifetime more than 1.7 billion events of which some 433.000.000 survived all quality cuts and are made available here for public usage.

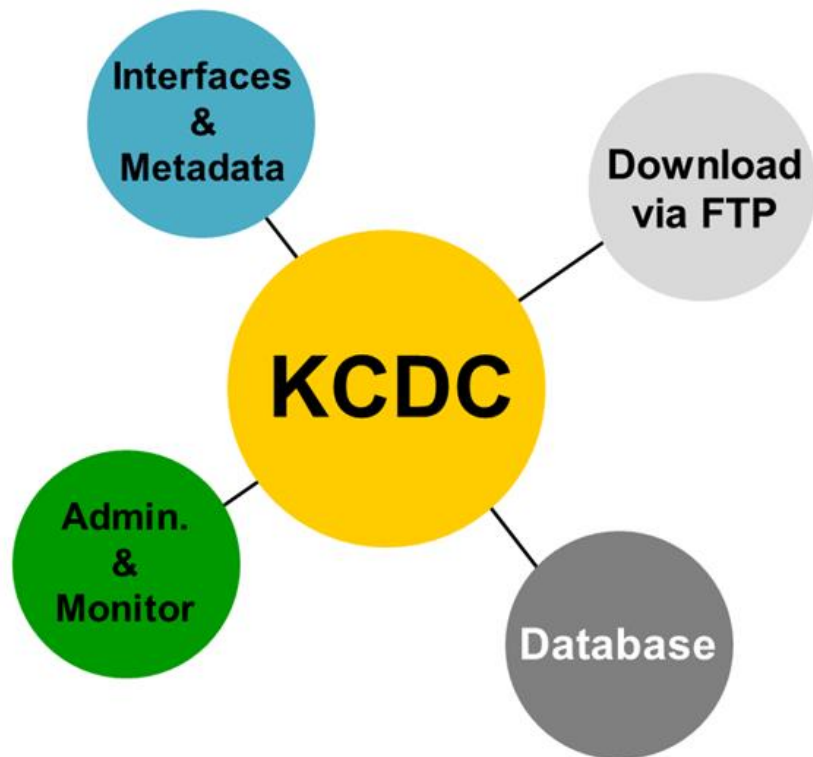
KASCADE
Karlsruhe Shower Core
and Array Detector

+++ The new KCDC version NABOO 2.0 has been released !!! +++

Institute for Nuclear Physics (IKP)
KIT Campus North
Address:
Institute for Nuclear Physics
Karlsruhe Institute of Technology
Hermann-v. Helmholtz-Platz 1
D-76344 Eggenstein-Leopoldshafen
Postal Address:
Institute for Nuclear Physics
Karlsruhe Institute of Technology
Postbox 3640
D-76021 Karlsruhe
Phone: +49/721/608-23546
Fax: +49/721/608-23548
E-Mail:
i kp-kcdc[at]i sts.kit.edu
Downloads
KCDC Manual (en)
KCDC Simulations Manual (en)

KCDC OPEN -BETA - VERSION NABOO 2.0 BASED ON: KAOS (1.0.0)

Web Portal

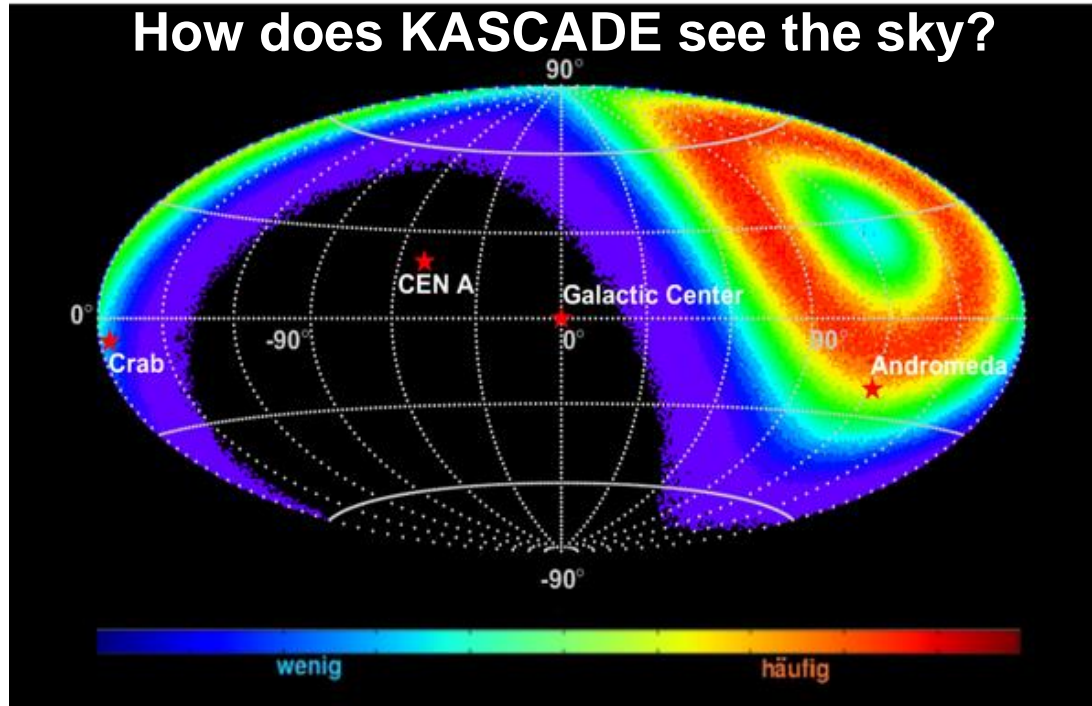


Intuitive and clear design

Free and unlimited access upon registration

License based on EULA* model

* End User License Agreement



An important goal of the public data release

Examples of simple data analyses for school students

KCDC is

**Already
accepted by
Astroparticle
Physics
community**

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Physics
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**Forerunner in
public data
access in
Astroparticle
Physics**

KCDC is

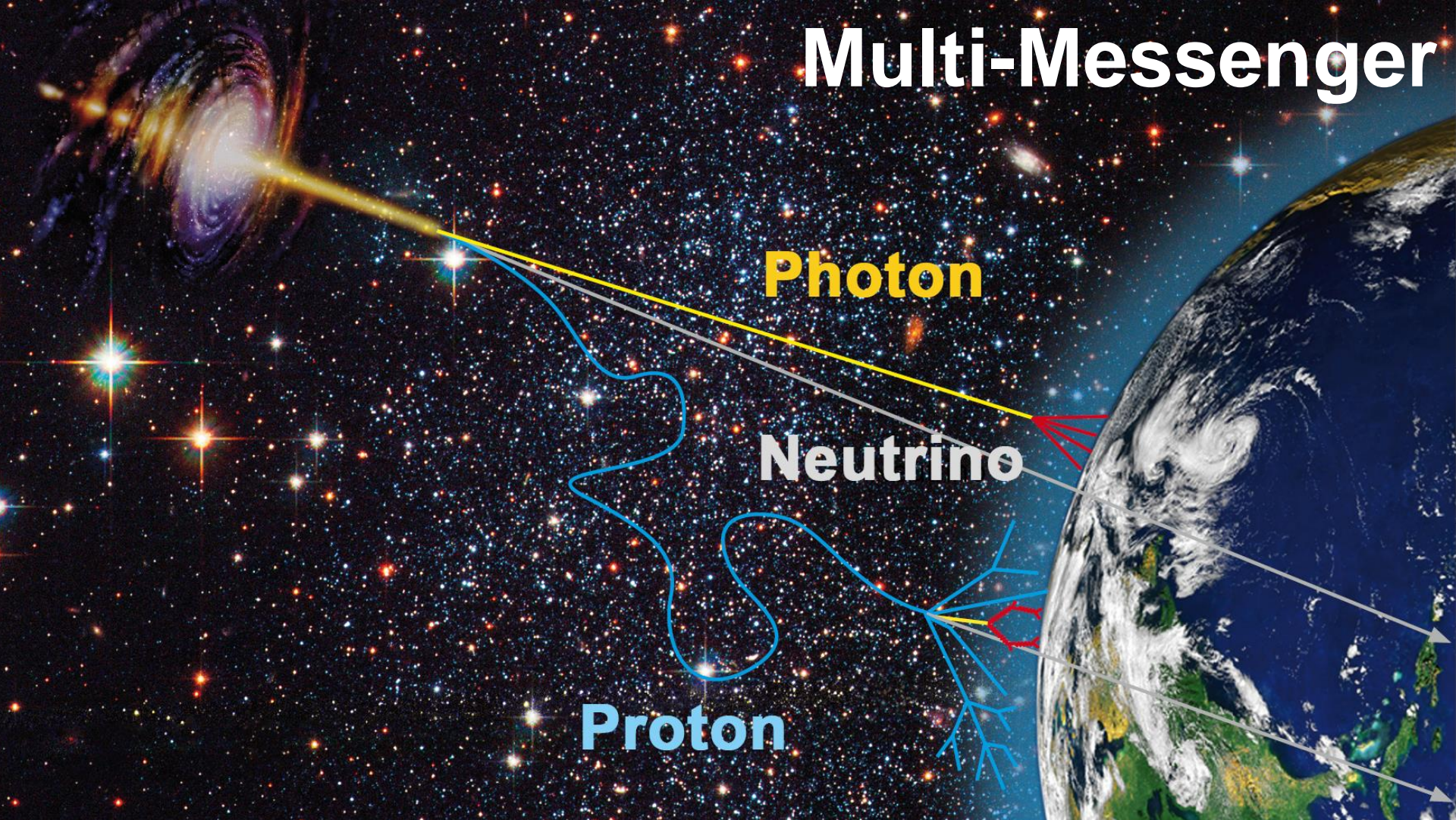
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Physics**

**First step
towards a
Global
Analysis &
Data Centre**

**Initiative for a
Global Analysis & Data Centre
in Astroparticle Physics**

Multi-Messenger



Photon

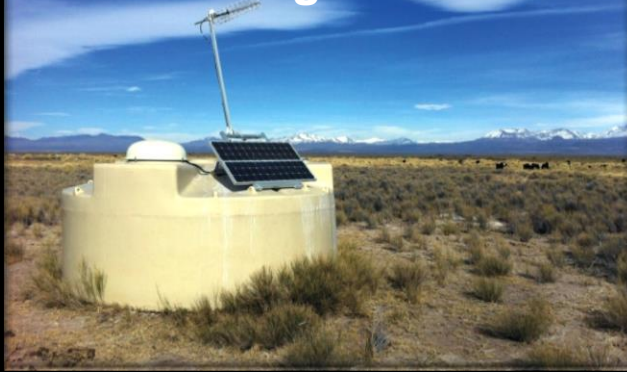
Neutrino

Proton

Cherenkov Telescope Array in Spain and Chile

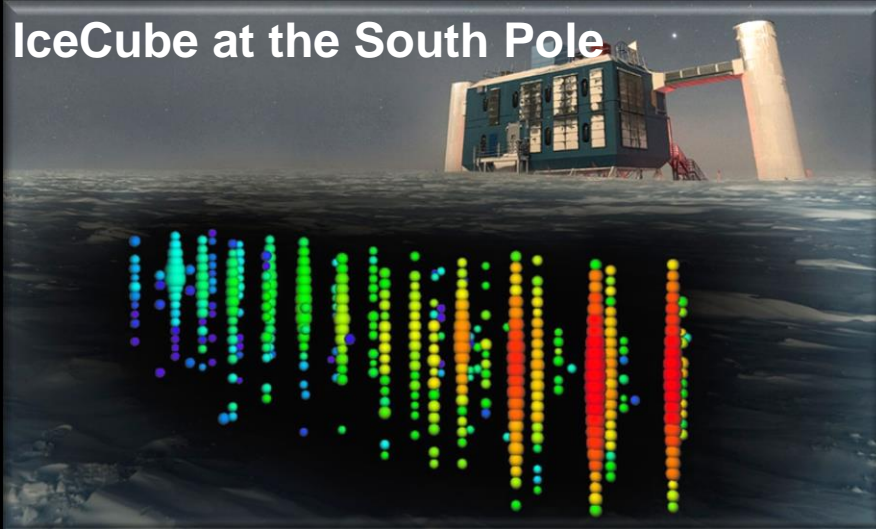


Pierre Auger Observatory in Argentina



Globally Distributed Experiments

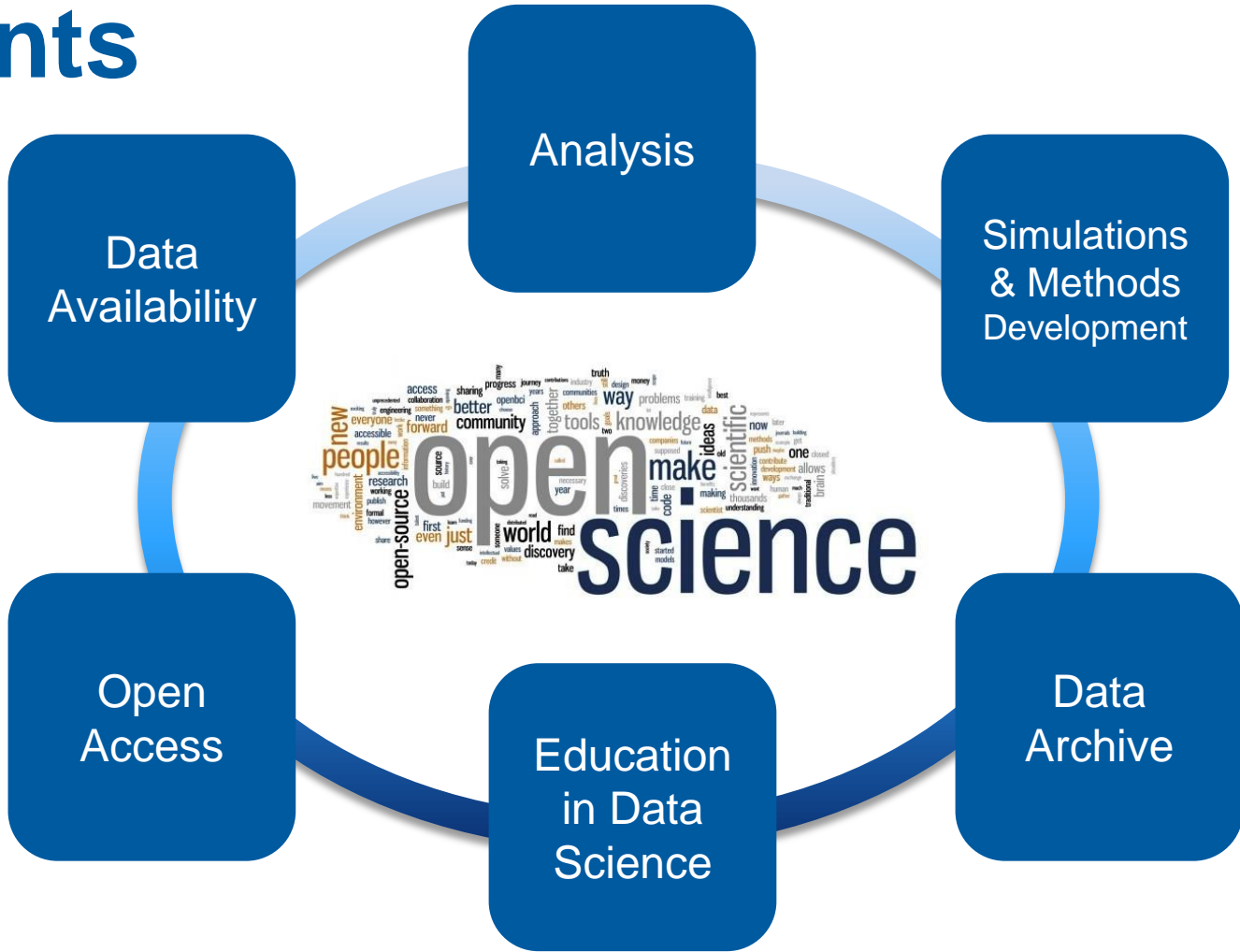
IceCube at the South Pole



KASCADE at KIT in Karlsruhe



Elements



Next Steps

Develop an
Open Science
system based
on KCDC

Next Steps

Develop an
Open Science
system based
on KCDC

Develop
integrated
solutions of
distributed data
storage
algorithms and
techniques

Next Steps

Develop an
Open Science
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on KCDC

Develop
integrated
solutions of
distributed data
storage
algorithms and
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Allowing
community to
perform multi-
messenger
analyses

Stay tuned!

