Stalowy Golem

presents

The Oracle of DSCOVR
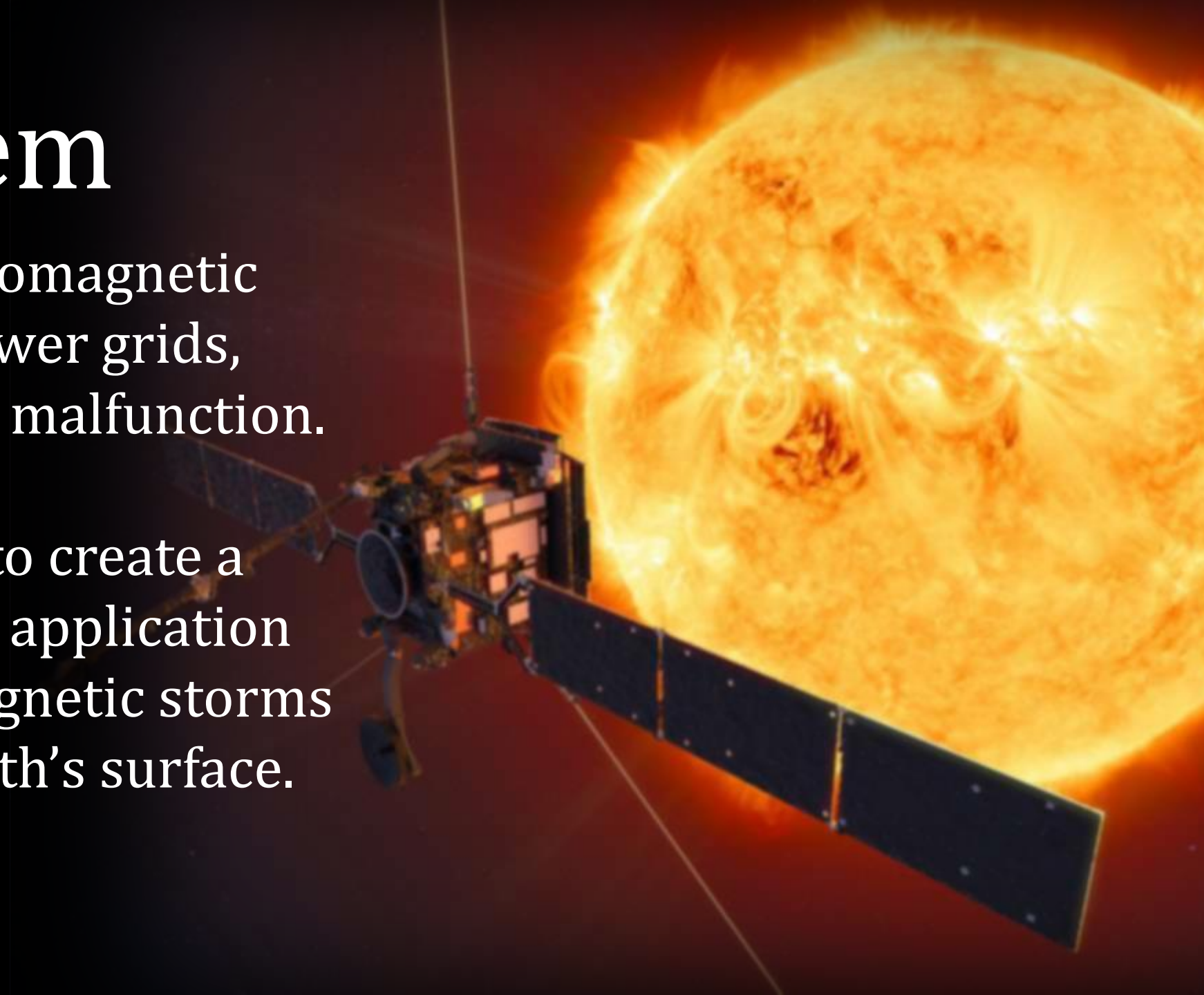
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GOLEM

Problem

Unpredictable geomagnetic storms cause power grids, aviation, and GPS to malfunction.

The objective is to create a **reliable** and **timely** application that predicts geomagnetic storms before they hit Earth's surface.
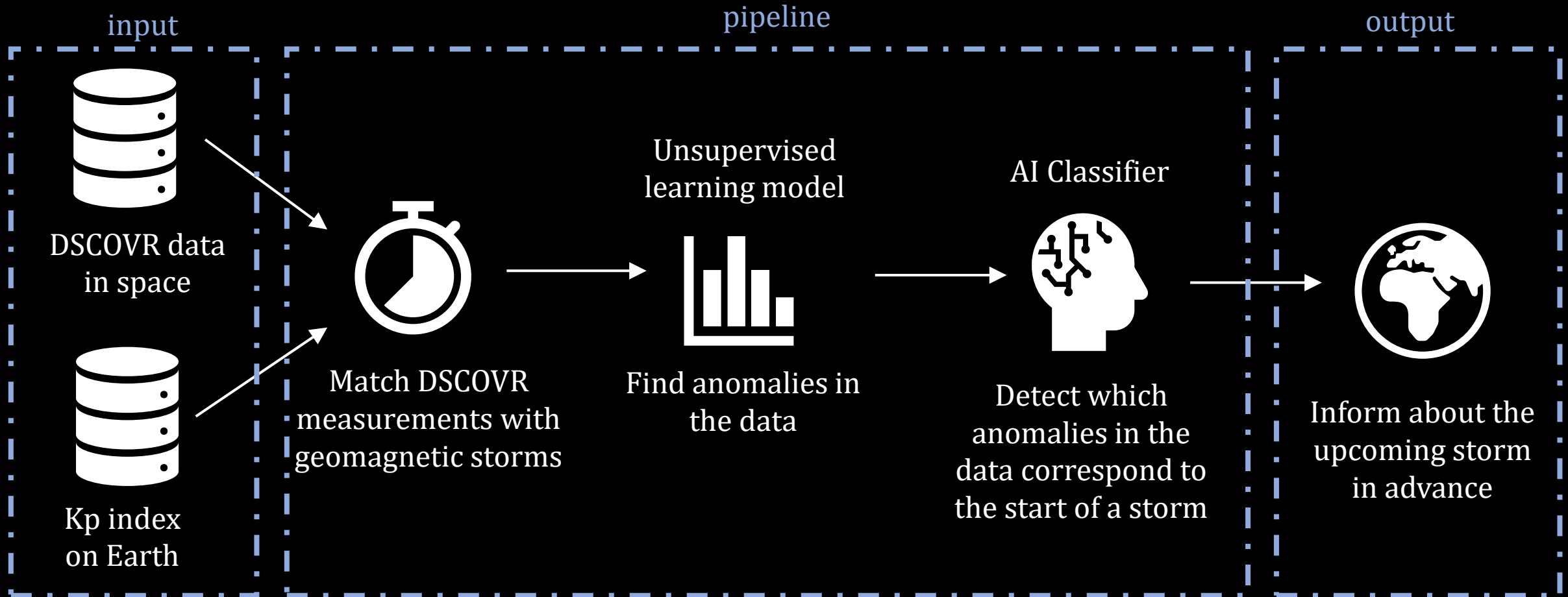
Solution

Using DSCOVER satellite, we can obtain speed, force, and temperature of the current magnetic field.

Matching this data with Earth's geomagnetic field measurements, we will create a system to detect magnetic field anomalies and predict storms in advance.

Solution

input

DSCOVR data in space

Kp index on Earth

pipeline

Match DSCOVR measurements with geomagnetic storms

Unsupervised learning model

Find anomalies in the data

AI Classifier

Detect which anomalies in the data correspond to the start of a storm

output

Inform about the upcoming storm in advance

Anomaly Detection & Storm Forecast

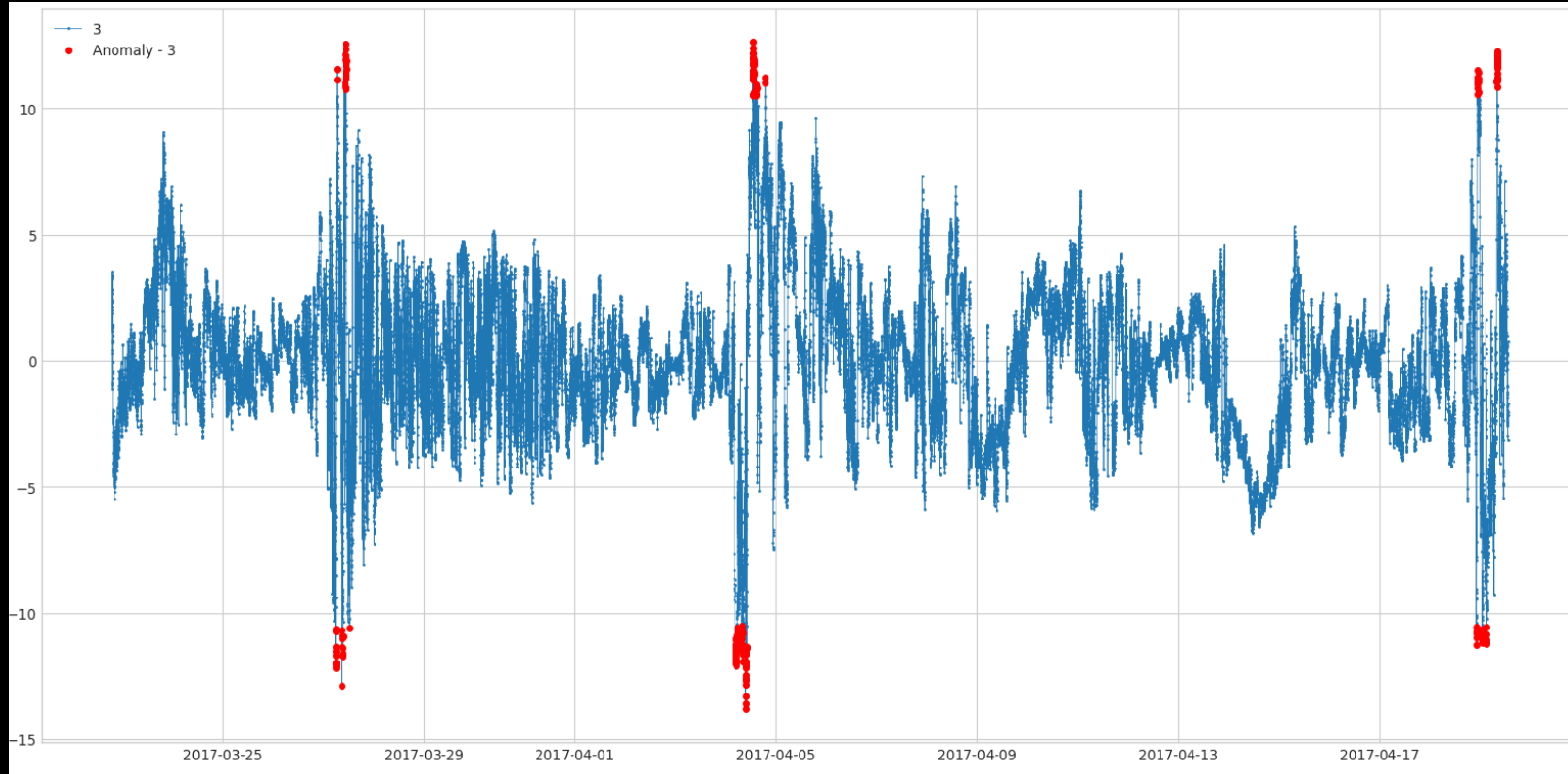
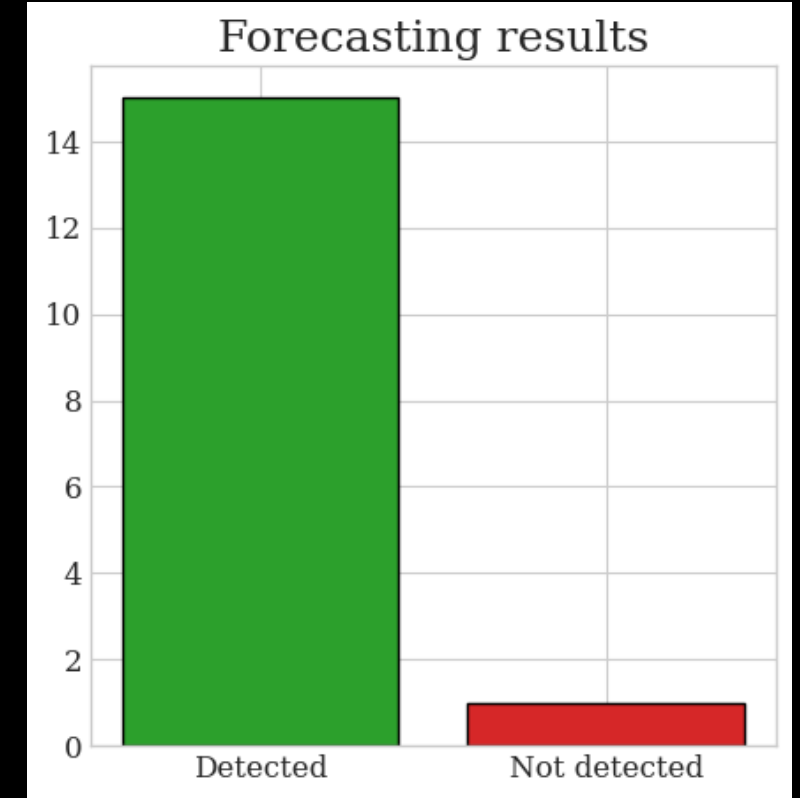Fig 1. Sensor measurements over a month

Fig 2. Number of detected and non-detected storms

Results

93%

accuracy on geomagnetic storm detection

6h

forecasting horizon

AI-powered, state of the art solution

Impact

- ✓ Reliable warning system – more secure critical infrastructure

- ✓ Faster reaction – better harm prevention

- ✓ Credible data sources – cutting edge solution