WiHi
a Noëtic Weather Service on Solana

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Who we are

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Noetika Technologies is a boutique blockchain shop based in Novi Sad, Serbia, focusing on blockchain for infrastructure

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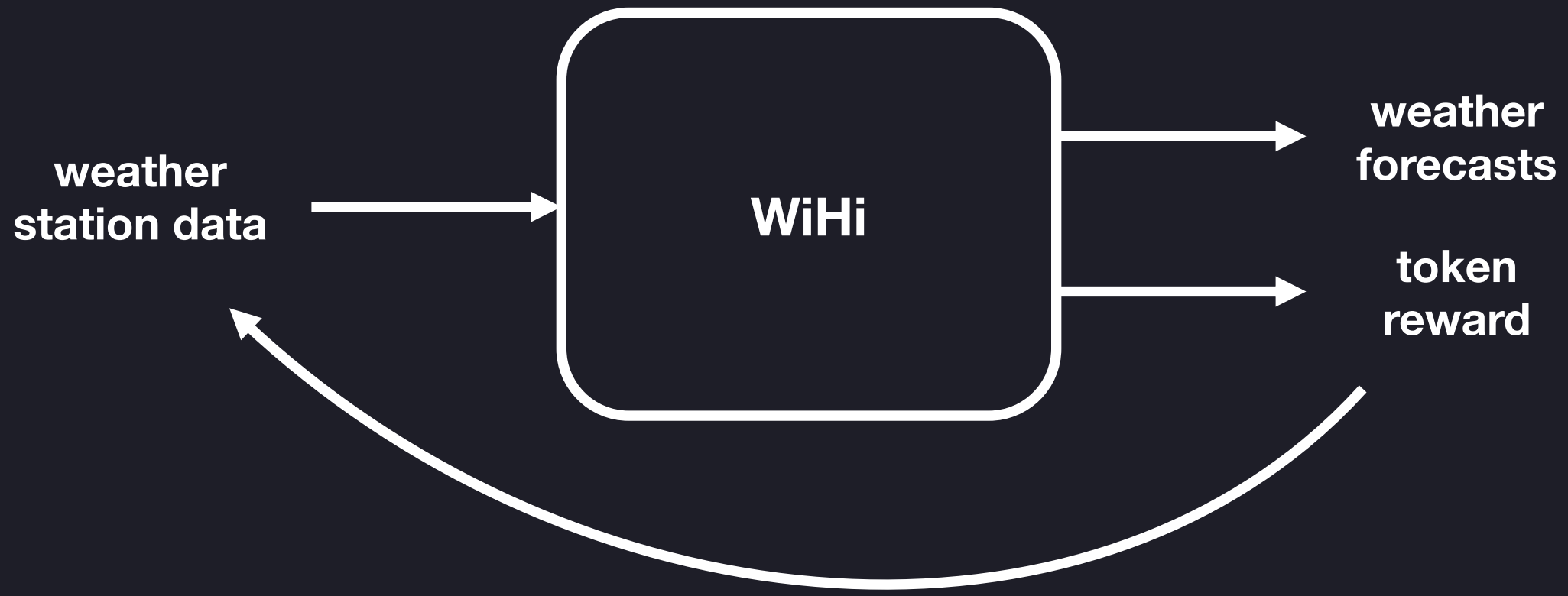
Overview

- Intro to WiHi
- Market need
- How it works
- Its benefits
- Demo

WiHi

WiHi is a decentralized weather forecasting service



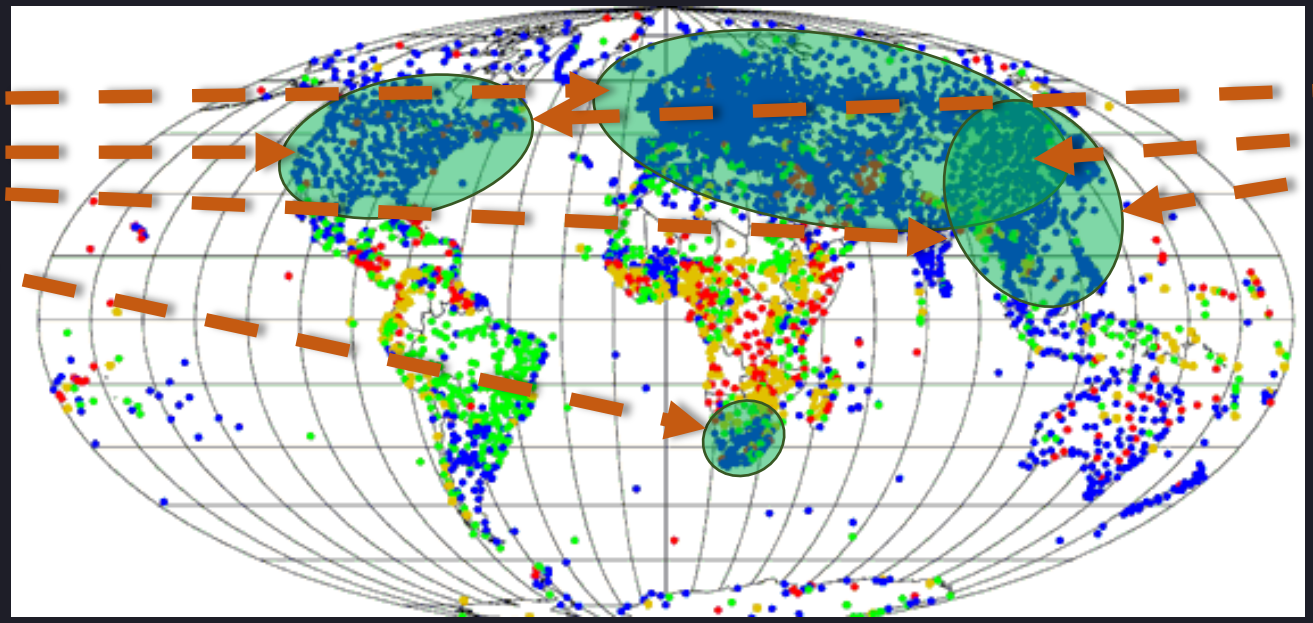
Why we need to improve weather forecasts: Supply side of forecasting

Forecasting depends on two things:

1) Good data

2) Good models

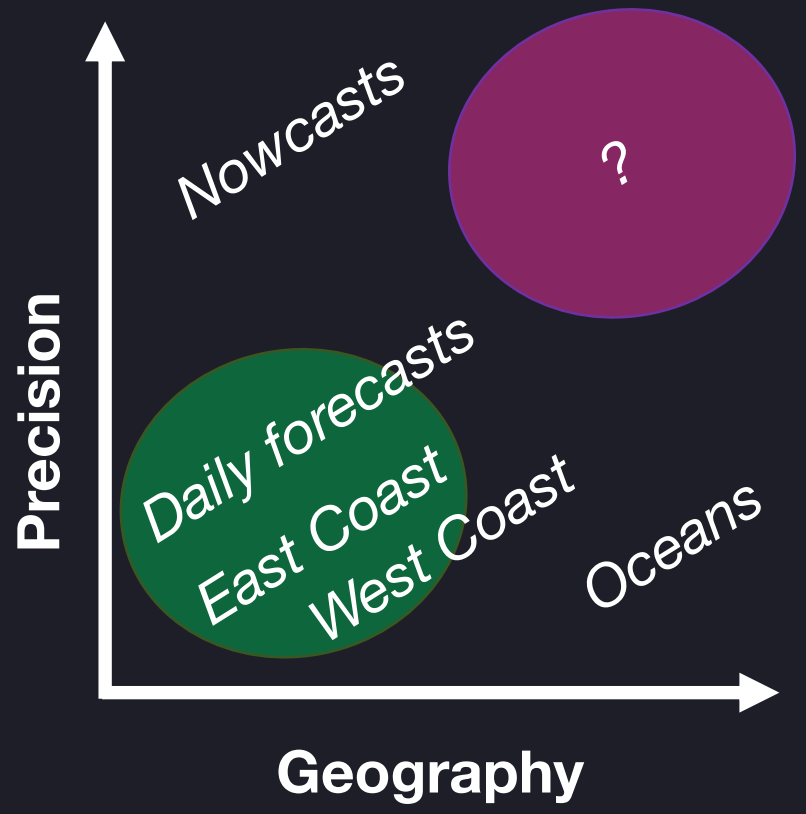
This is where we get good data



This is where we have good models

Why we need to improve weather forecasts: Demand side of forecasting

Weather greatly affects the supply chain – especially agriculture



Two main thrusts in forecasting demand:

1) **Nowcasting:** Ability to predict microclimates (small areas in short timeframes)
2) **Geographic representation:** We don't know much about our oceans and poles
   - *Note that this affects the West Coast, since the weather from the Pacific blows west!*

The good news is:
A good incentivization scheme solves everything

With WiHi, our idea is not to provide a direct solution

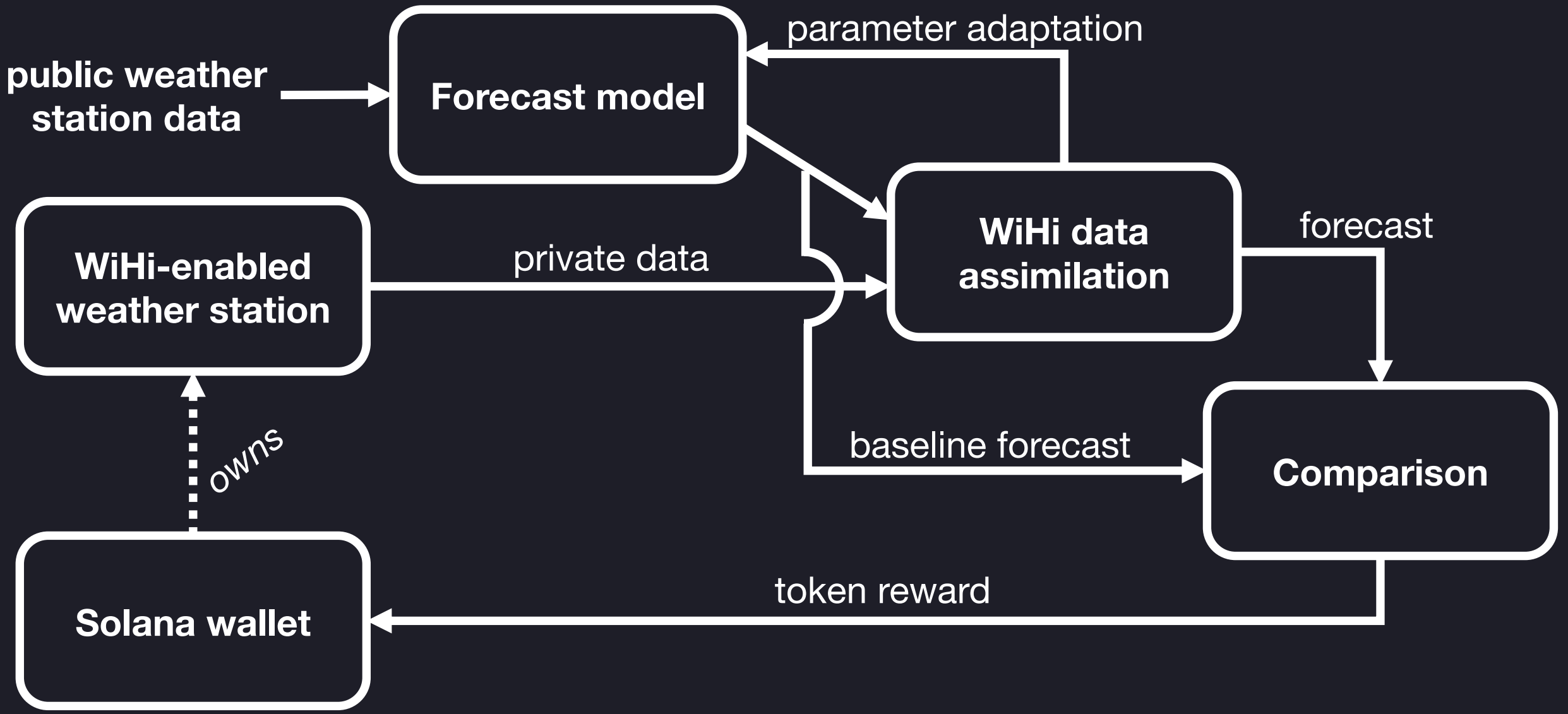
It is to incentivize a comprehensive, collaborative solution that tackles the weather problem as a whole

***Ergo*: We will improve data acquisition, weather modeling, nowcasting, geographic representation…**

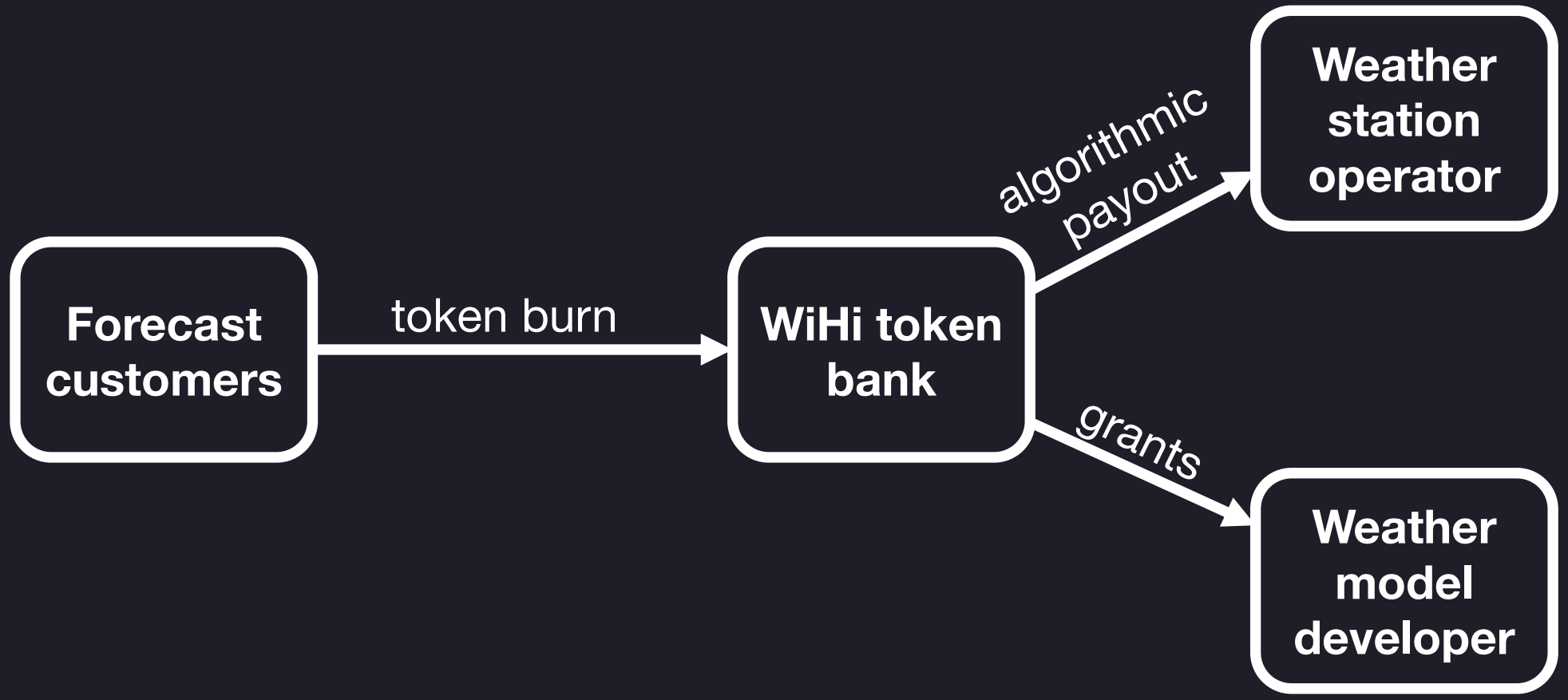
How it works: The macro

- WiHi allows people to set up WiHi-enabled weather stations
- Stations send data to WiHi and obtain WiHi tokens in return
- Amount received is proportional to the improvement in forecast

How it works: The micro



How it works: Tokenomics

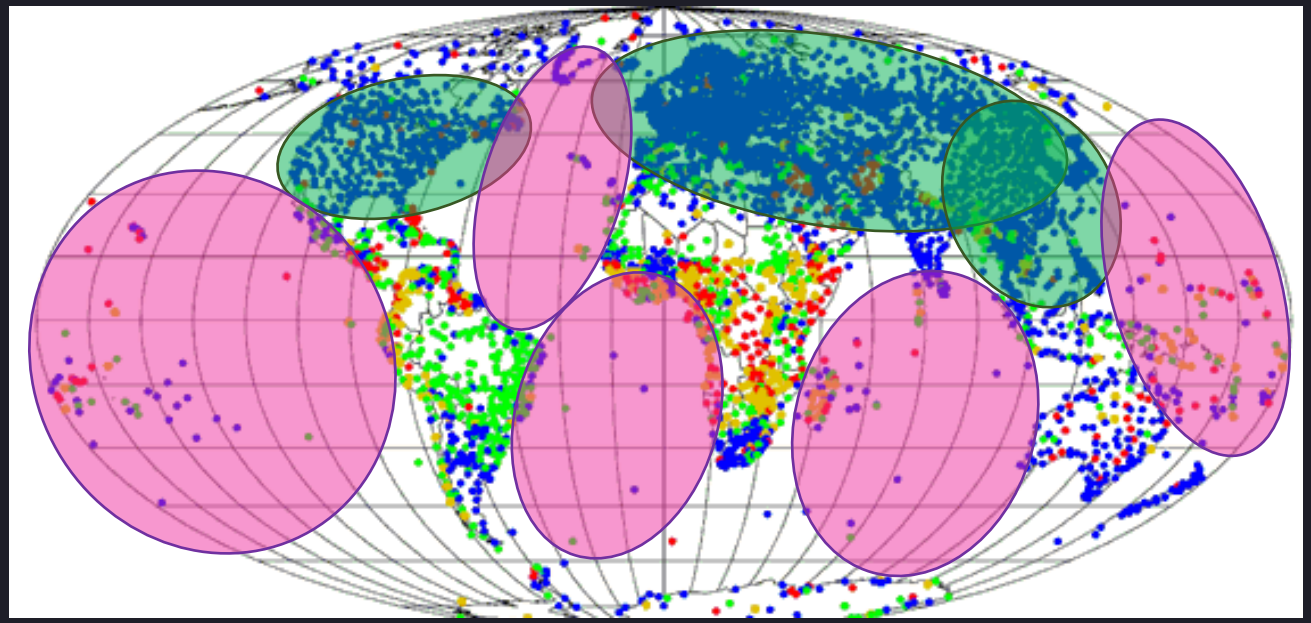


Free market

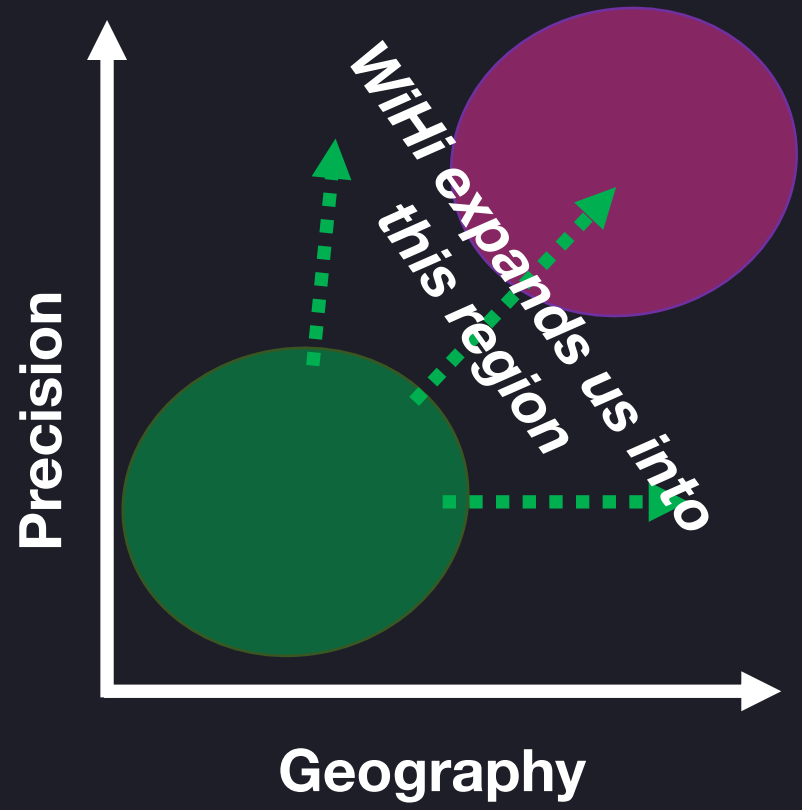
WiHi incentivizes weather network buildout

There are two ways to improve WiHi earnings:

1) Invest in better sensing equipment
2) Invest in better geographical placement
    a) Invest in ocean- or air-based equipment



The oceans are underrepresented



WiHi incentivizes weather sensor development

- WiHi is well-placed to take advantage of current trends in weather sensor development
- WiHi incentivizes integration with the current state-of-the-art:
  - Seacraft-based, airicraft-based and long-range sensing solutions

Voluntary Observing Ship (VOS)

+

Passenger aircraft

+

Vaisala WindCube lidar (source: vaisala.com)

WiHi incentivizes better weather modeling

- Geographically-specialized weather models are superior to any global weather model
  - For example, the NAM in the US and ECMWF in Europe

- Model development benefits from WiHi because:
  1) Global data is necessary for global models
  2) Scientists funded by WiHi will have access to WiHi data

WiHi delivers value to customers of weather

Most weather data is public or siloed

WiHi strikes a balance in-between for those customers who need higher fidelity forecasting

WiHi weather forecasting creates value for:

- **Renewable energy production: Wind and solar farm optimization**
- **Weather derivatives and insurance: Financial instruments protecting value of goods from agricultural, logistics, and energy disruptions**
- **Smart cities: Improving efficiency in renewable energy production, traffic routing, emergency services**
- **Sports teams: Teams playing outdoor sports can use weather data to plan tactics in real-time**
- **Disaster mitigation: Protecting crops, emergency service response**
- **…so much more**

WiHi is a tool for climate monitoring

- Climate change necessitates more regulation of carbon production and air pollution
- To get an accurate picture of carbon production, one must have accurate data and accurate models

Extending the WiHi approach to climate monitoring is straightforward

With accurate weather models, we can get accurate climate readings

With localized weather models, we enable real-time readings

We can help governments regulate polluters, track carbon credit usage, and most importantly: take quick and informed climate action

Our efforts thus far

- We partnered with:
  - Intellisense Systems, Torrance, CA – manufacturer of weather stations
  - Weather2Umbrella (W2U), London, UK – weather forecast provider
- Intellisense integrated its weather stations with the WiHi network
- We developed a scheme to improve W2U's forecasts using real-time data
- The scheme was tested last year and will be presented at this year's European Meteorological Society Annual Meeting in Bonn, Germany

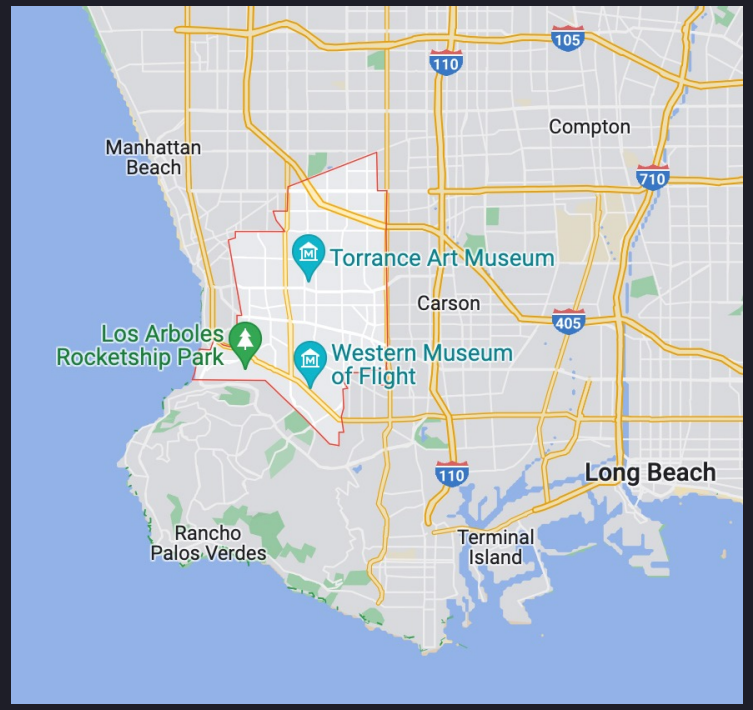
- We have been performing scientific outreach
  - The EMS Annual Meeting is yet another opportunity
- We believe the scientific community needs to be well-integrated into WiHi
  - Weather models are developed by scientists and we want them to participate in open-source weather development

Demo

The remainder of this presentation shows the our demo and its results

Demo details:

- Three (3) stations placed in locations in Torrance
- One reports every 5 min, the other two – every 20 min
- W2U provides forecasts localized to sensor locations
- WiHi learns parameters to correct W2U predictions
- WiHi issues tokens in proportion to improvement

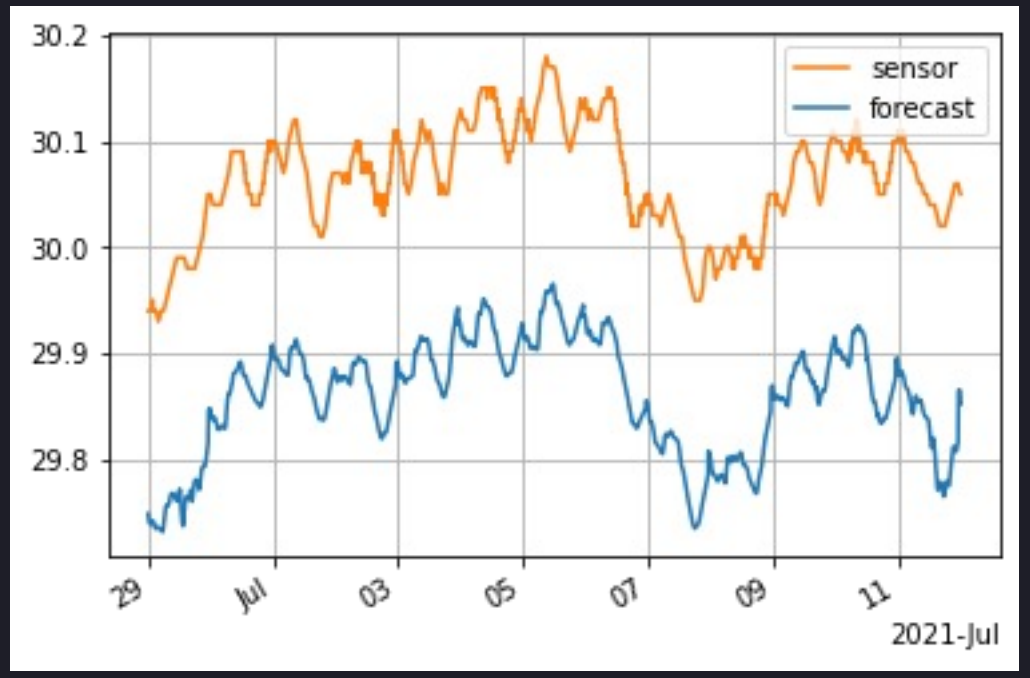


Highlights of results:

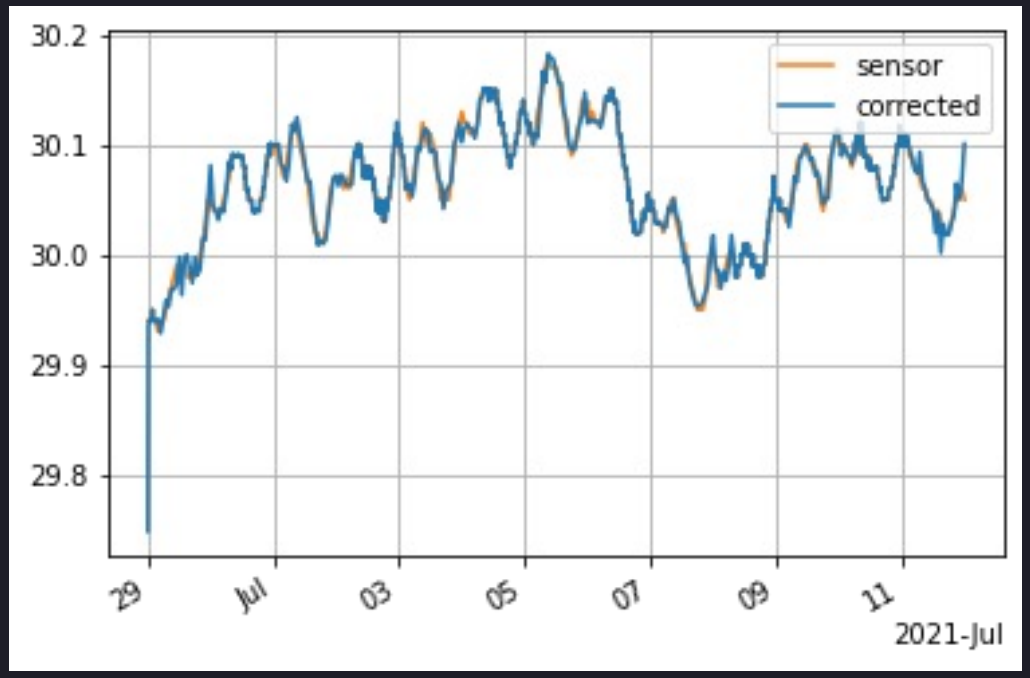
- Correction is quick for most readings
  - Wind data is exception due to high fluctuations
- The frequently reporting sensor has higher earnings

Results

Barometer pressure (inHg)



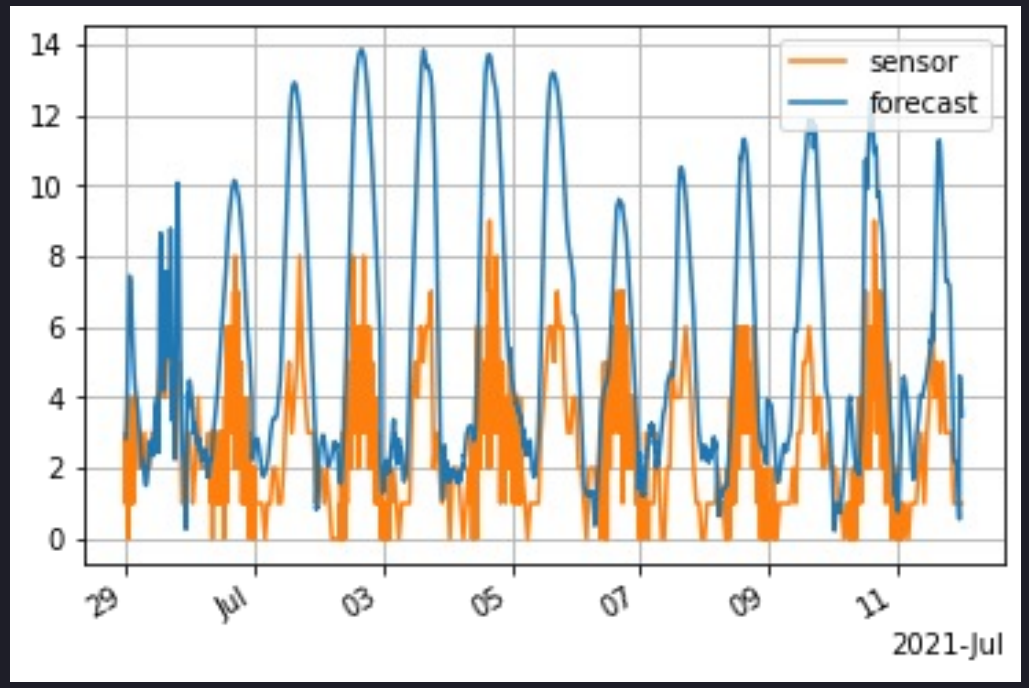
no WiHi



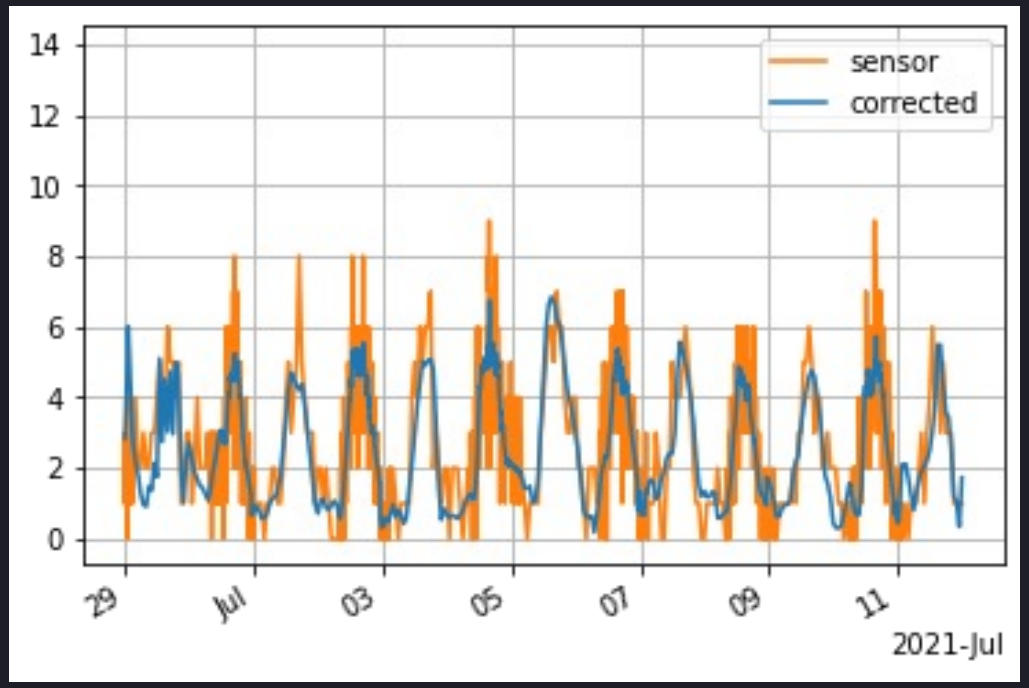
with WiHi

Results

Wind speed (kt)



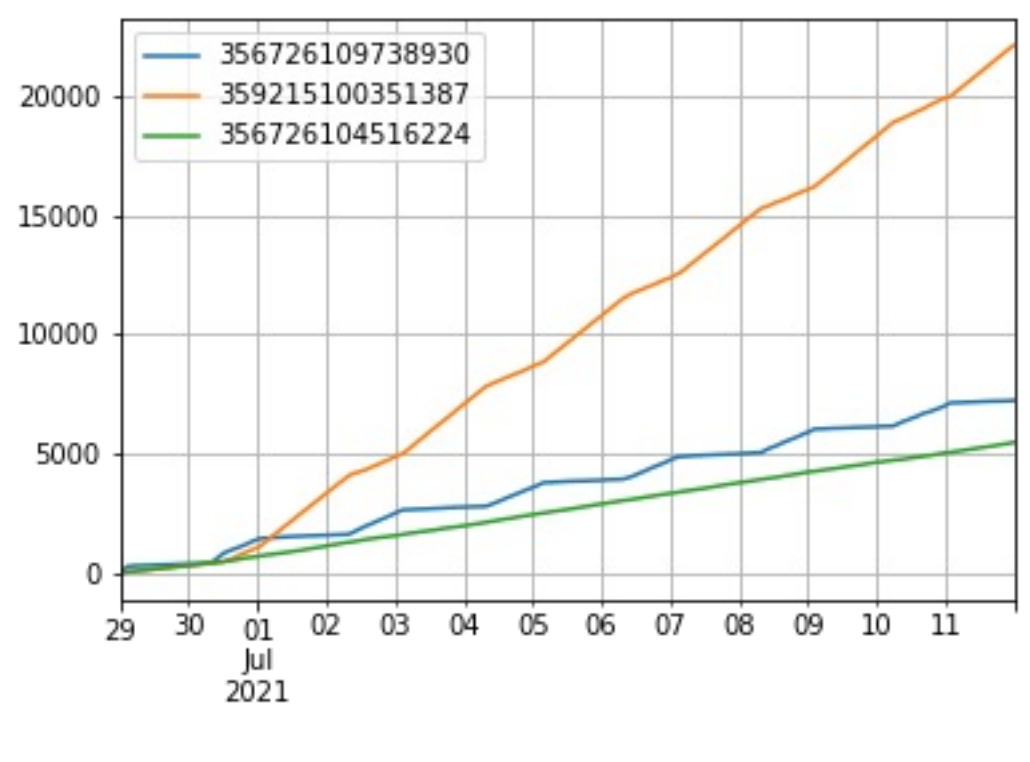
no WiHi



with WiHi

Results

Token earnings



Thank you for your attention

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