



Predict.



Perform.



Profit.

ignitia TROPICAL
WEATHER
FORECASTING

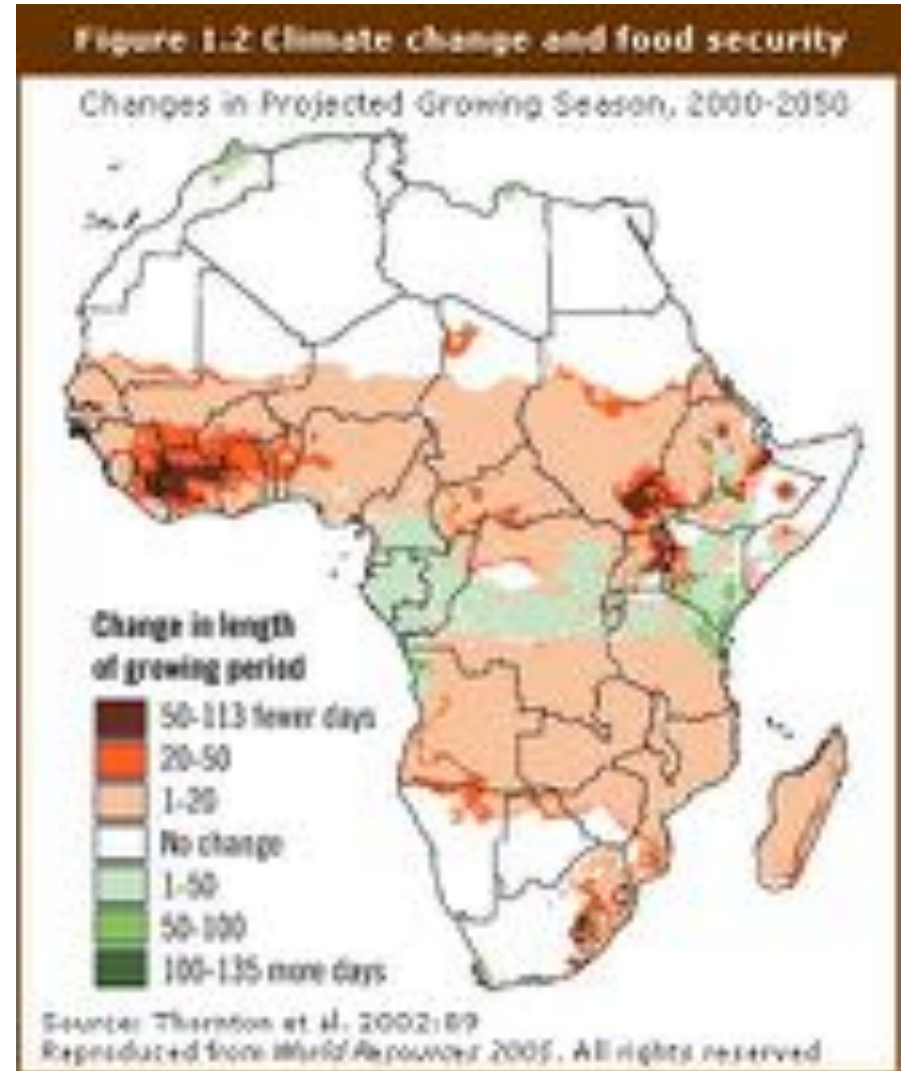
Highly accurate rain forecasts – a missing link to Climate Resilient Agriculture in West Africa

Presentation for Food Security Working Group

9 May 2017

Climate Change & Food Security

- West Africa – hardest hit by Climate Change effects
- Traditional forecast methods are not working any longer
- Dominated by Smallholder farmers, the poorest areas – irrigation not a solution
- Solution is to work with the existing unpredictable rain, not to be defeated by the weather
- Highly accurate rain forecasts – a missing link to Climate Resilient Agriculture

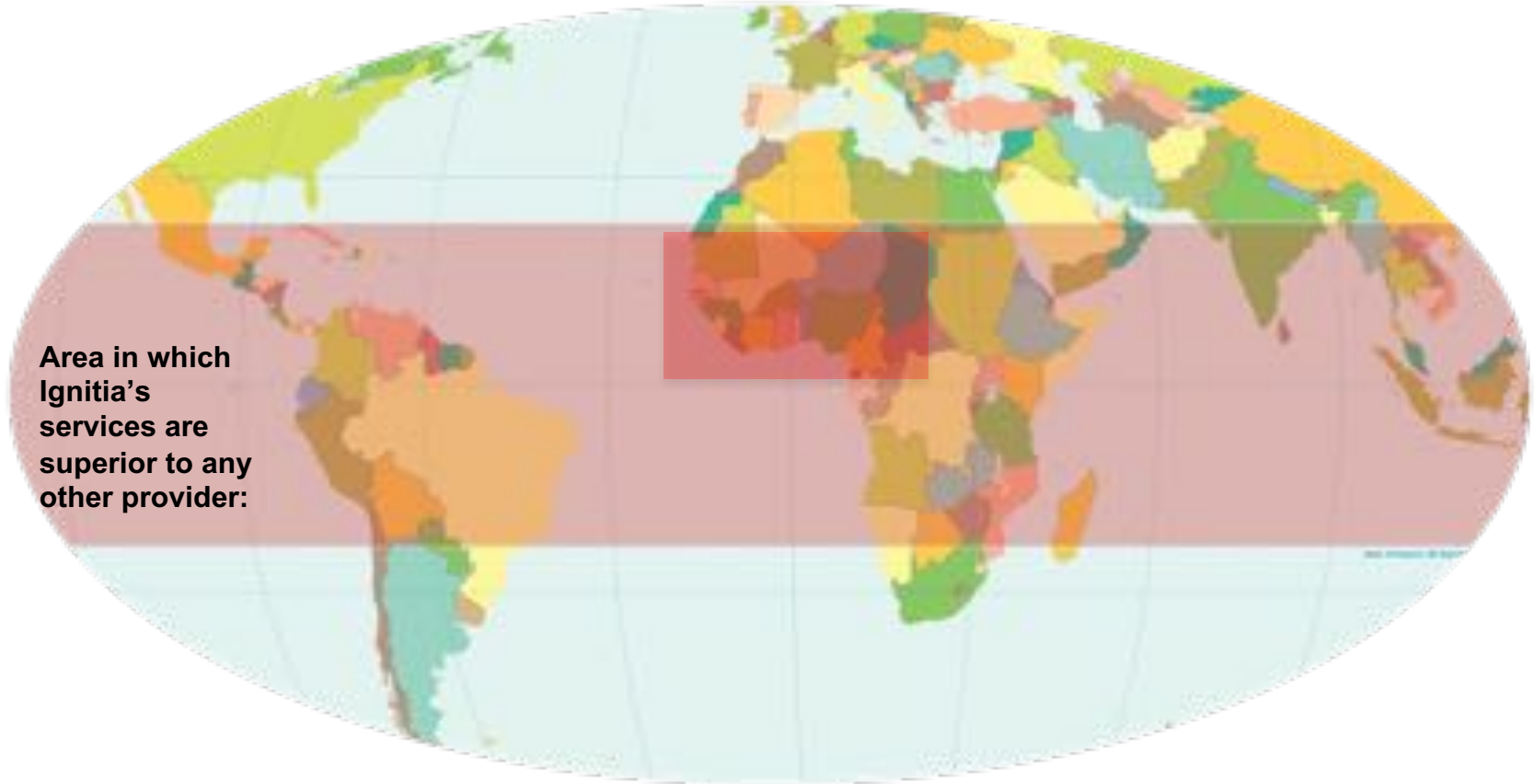


Agricultural Challenges in Nigeria



Agriculture continues to be an important and the largest sector of the Nigerian economy, employing two-thirds of the entire labor force. But the underdevelopment of the sector and many challenges still stifle it from growing and not keeping up with the rapid population growth. One of the main factors challenging production include the immense reliance on **rain-fed agriculture**

World's First Tropical Weather Specialist

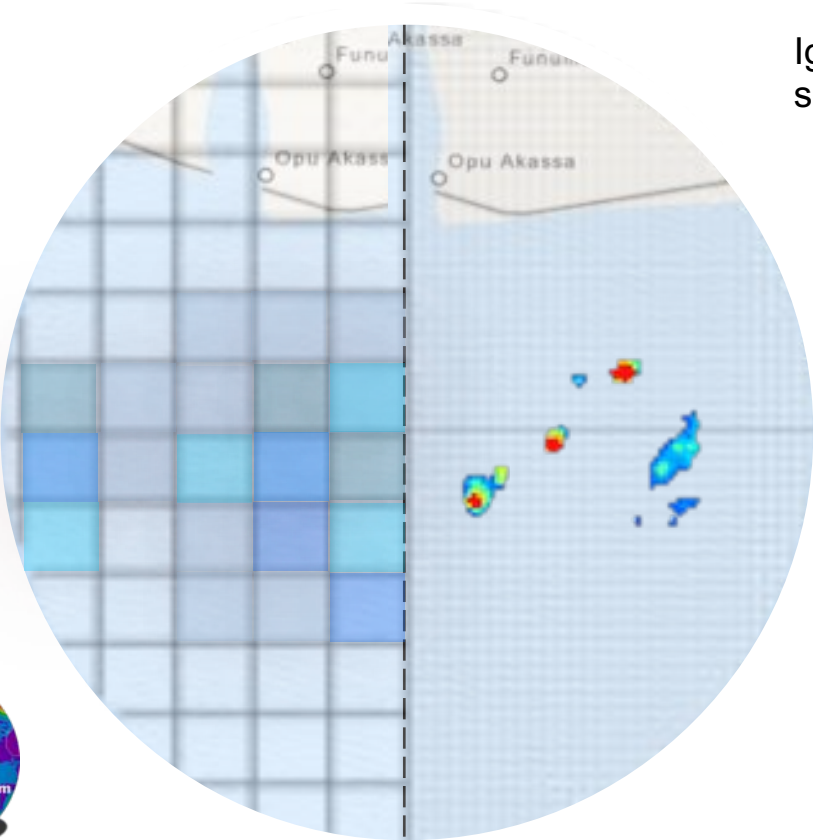


**Tropical
Weather**

Weather works different in the tropics:
Smaller storms that happen much more quickly

Our model creates near-accurate storm predictions

Global model simulation of competitors



Ignitia's disruptive technology for simulating convective patterns

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AS A RESULT

- Over-predicted miss-located thunderstorms
- Near-accurate thunderstorm predictions

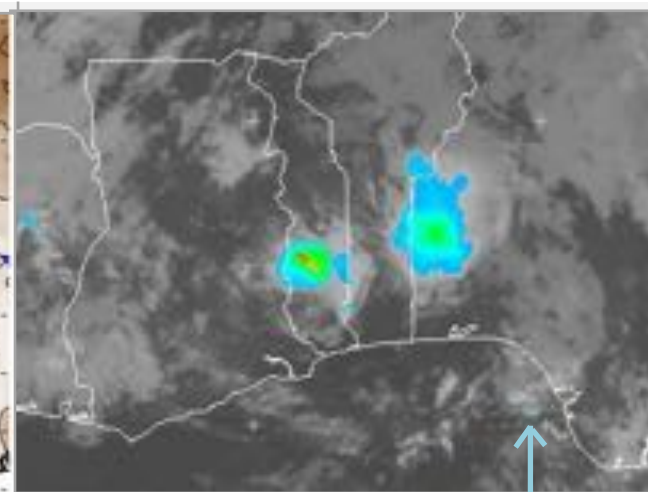
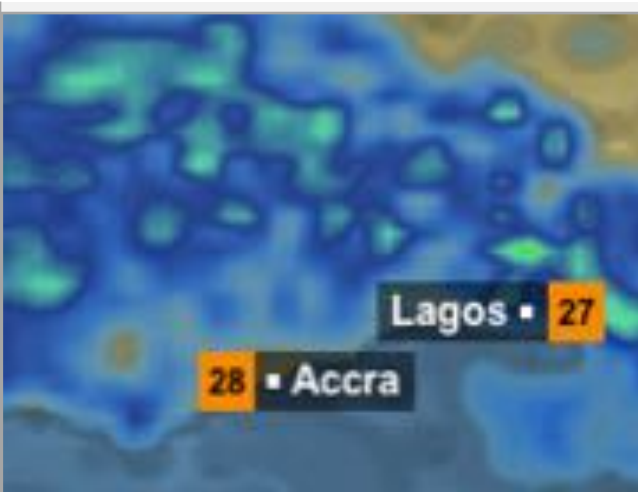
Ignitia forecasts are twice as accurate as global models

Comparative 48 hour rainfall forecast vs. Actual (satellite)



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Actual
(48h later)



(These are storms)

Heavy rain
Light rain

39%



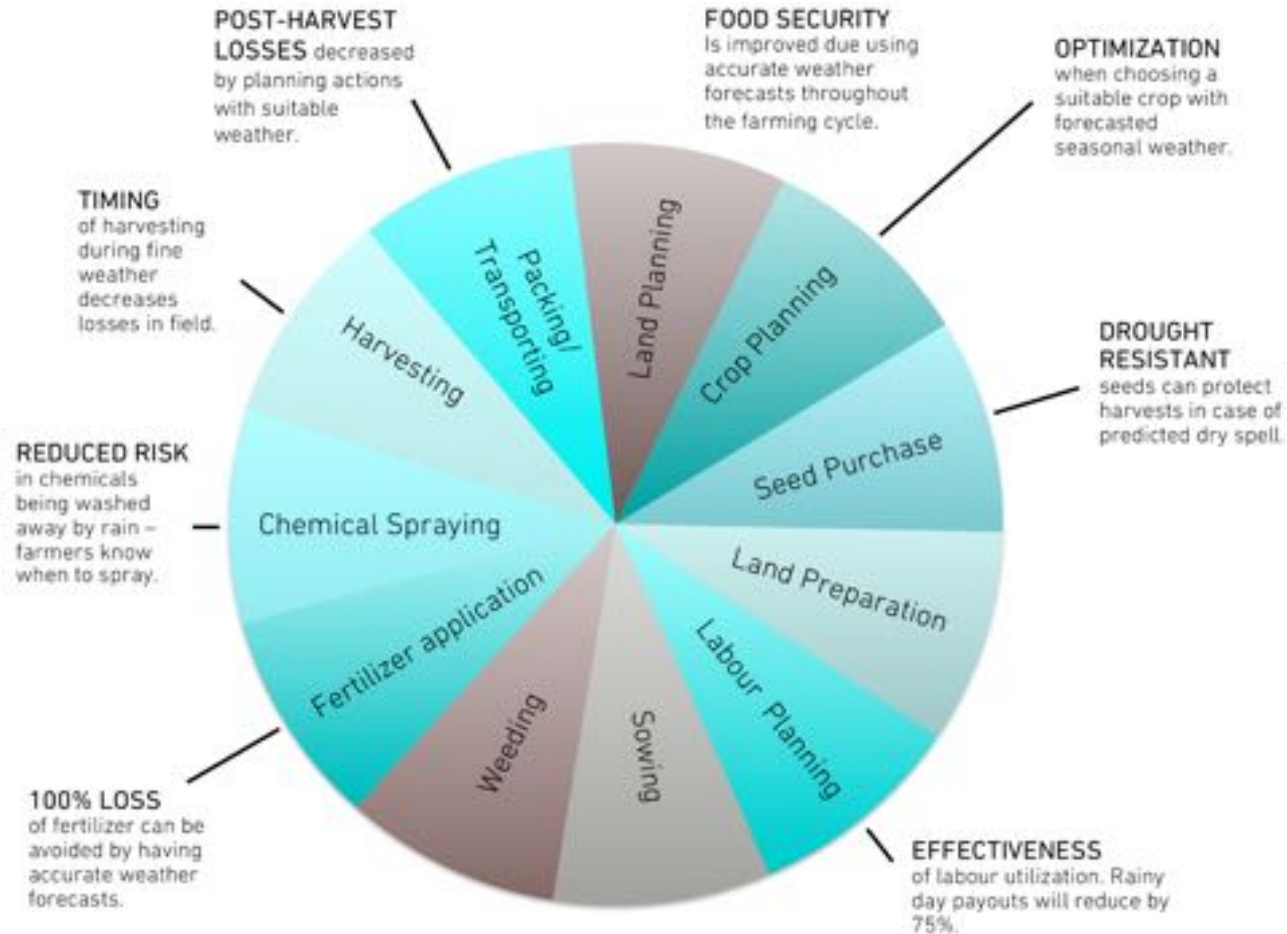
84% accuracy

Between forecasts on October 9, 2013, 00 UTC

A faint, light-colored world map is visible in the background of the slide. A horizontal teal bar is overlaid across the middle of the map, containing the main text.

Ignitia weather forecasting is 84%
accurate down to 3km x 3km

Forecasting helps every stage of the farming cycle



Up to 80% increase of yield by receiving weather information only*

*Study on 3,000 smallholder farmers in Mali, Climate Risk Management in Africa: Learning from Practice., Columbia University, New York, USA.

The solution – Direct to mobile phone



“Today, high chance of rain, morningtime. Tomorrow, likely dry.”

iska™ - more in detail

SMS is sent to farmer every morning giving 48 hours rain forecast using three parameters:

1. Likelihood of rain

Dry	normally no rain, less than 20% probability of rain
Likely Dry	dry conditions, around 20% probability of rain
Rain Likely	significant chance of rain, around 60% probability
High chance of rain	it will most likely rain, more than 75% probability

2. Time Specifier of Rain

No Specification	No particular or multiple time period
Morning time	06.00-12.00am
Daytime	12.00-18.00
Nighttime	18.00-06.00

3. Intensity specifier

Heavy Rain	large rainfall, potential destructive winds, intense lightning
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Ways that iska™ can support a project

- **Iska contributes to two Important Project Development Objectives :**
 1. Sustainably increase agricultural productivity and income
 2. Adapt and build resilience to Climate Change
- **Leverage effects on increased use of inputs**

Iska can give an improved impact in existing projects focusing on effective use of agricultural inputs like quality seeds, fertilizer and pesticide and machinery
- **Decision support for resilience to severe weather and unreliable rain**

Iska gives the farmer accurate local information for 48 hours warning of severe weather and also a way to benefit from the more rare rain sessions
- **Sustainable and scalable tool to improve impact to existing projects**

Both the Service Delivery and Payment Model is sustainable to live on after initial sponsored period. Service can scale-up very easily to reach existing large target groups

Additional advantages with iska

- **Gender and Youth inclusive agenda**

Our experience is that Women and Young Farmers are more likely to be early adopters of the iska service

- **Preventing Fraud and corruption**

It is impossible for the iska service to be object of fraud and corruption as there is no delivery of goods or money and there is no intermediary agents.

- **Environmental impact**

Iska service has no environmental footprint in the production and distribution. It can have a positive environmental effect through decreasing the need for deforestation to increase food production.

- **No need for infrastructure and investments**

There is no need for long delays and large CAPEX investments as Iska uses the existing mobile phones of the farmers and Mobile Networks

Ability to make decisions around their future = improved livelihoods and security

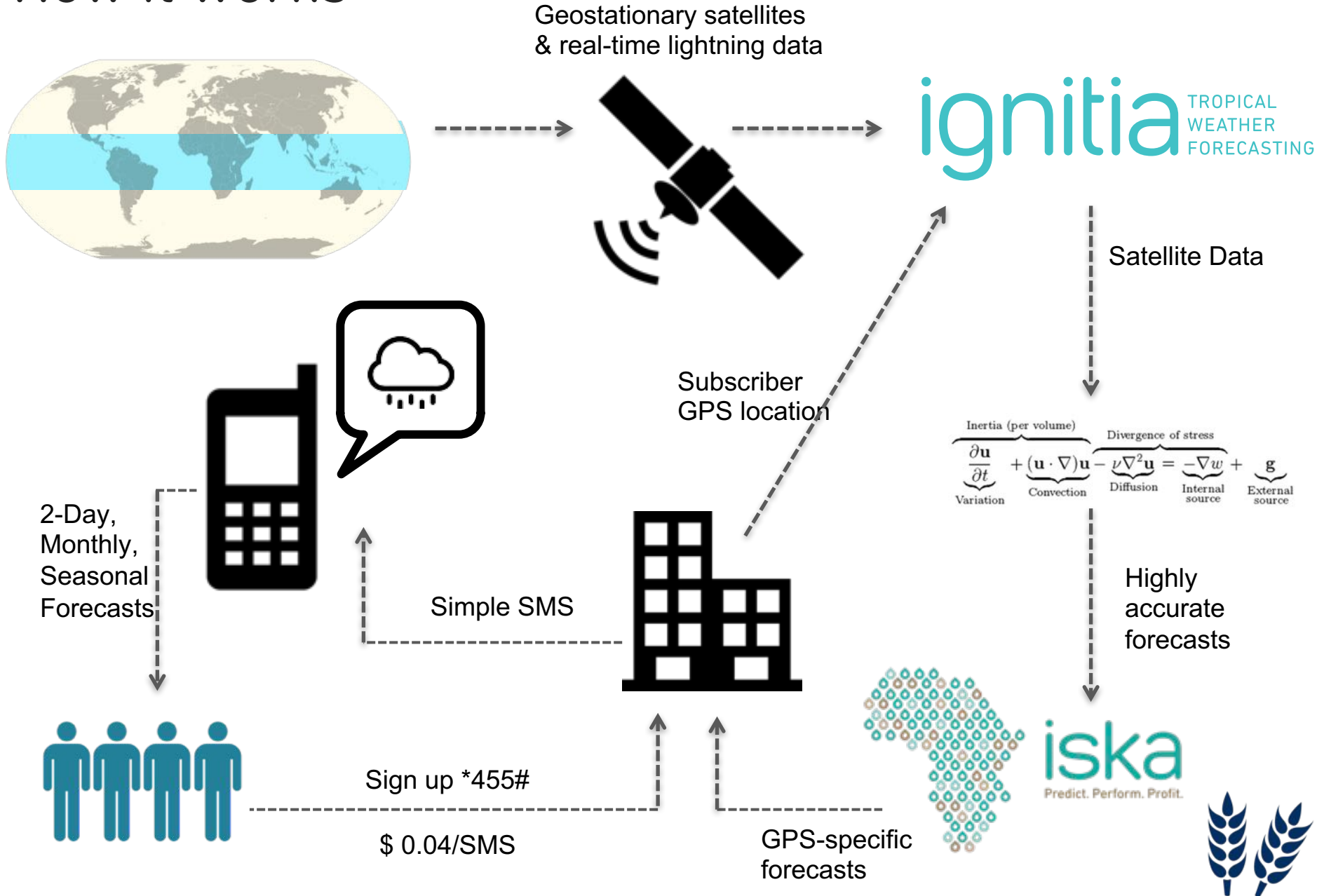


“Accurate seasonal forecast allowed him to choose drought resistant maize and delay planting during a late-start rainy season”
= entire yield saved

“Time fertilizer applications around the rain for my cocoa plants”
= \$3000 saved during the season on not-wasted inputs/money

“Received alert around late-rains in harvest season and was able to save cotton crop drying”
= increased price for quality, and 2x the yield

How it works



Outlooks for Northeastern Nigeria

- We took a look at the current outlooks for northeastern Nigeria and while the boring conclusion is that it looks about normal in terms of rainfall and slightly warmer than normal for the time of year for the next 6 months, there is a current El Nino watch in the Pacific.
- This means that there is chance for an El Nino developing over the coming months, although weaker than the one last year. If an El Nino develops, it usually has downstream impacts on large portions of the Tropics, which may affect the seasonal forecasts as we move forward.
- This is of course yet to materialize and the current outlook is hence that there is no particular signal indicating the most likely scenario is having close to normal rainfall.
- Saying this, the new normal is that the rains are more erratic with prolonged dry spells interspersed between very active rainfall events. From Ghana we know that the number of rain events have gone down over the past 50 years, but when it rains, it tends to be heavier, such that the total amounts have not changed much. I believe Nigeria have experienced similar trends without looking at such data there (but it makes physical sense).
- **What this means is that daily weather forecasts and monthly outlooks are important as a tool to optimize agriculture, particularly in places where crops are rain fed and where the farms are small, having large impacts on family incomes.**

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