From Earth Science to Societal Impact

One Scientist's Journey

Dr. Hansi Singh
June 2025
30th Annual CESM Workshop

Shout-Outs

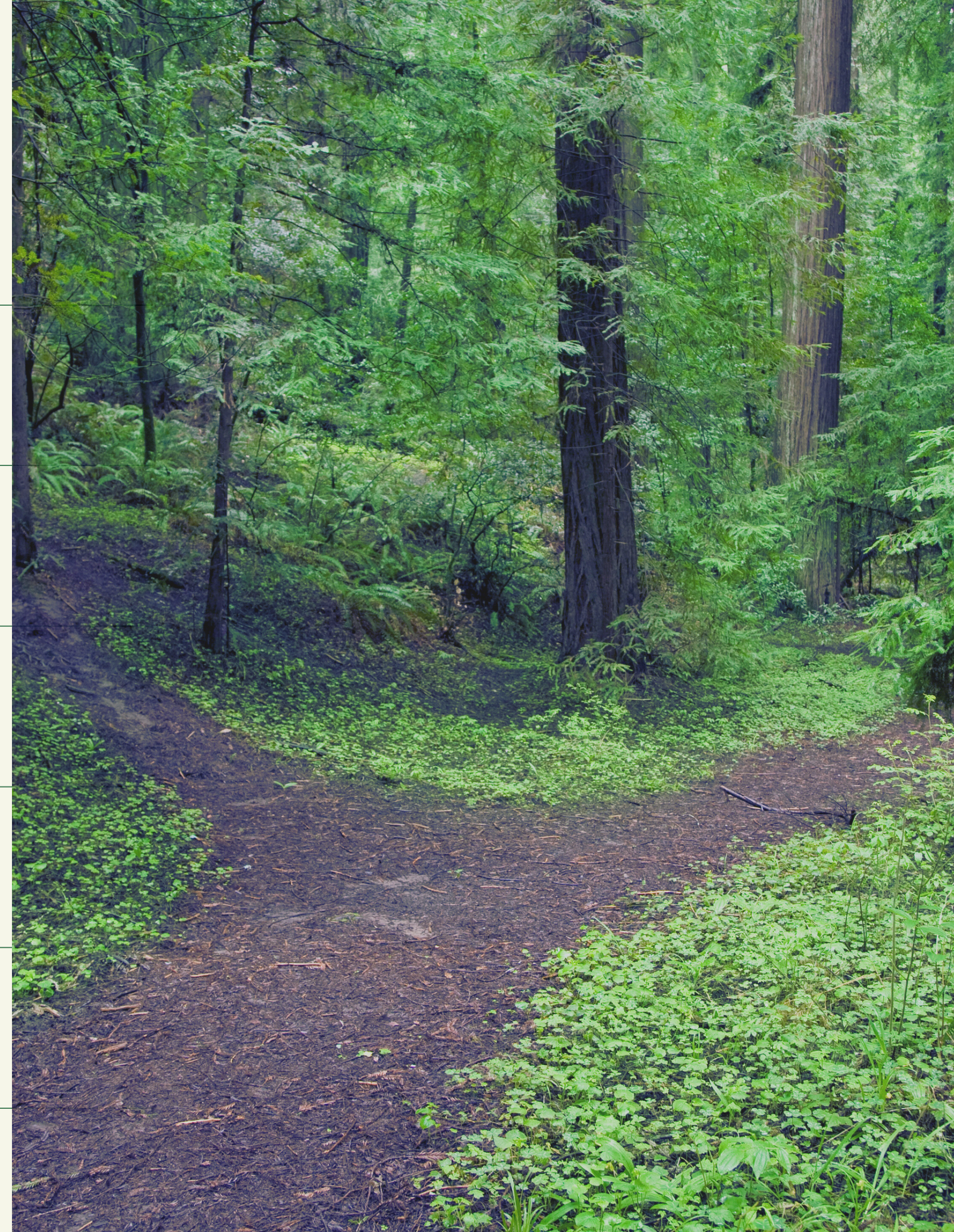# Meanderings

My 'Career' Timeline

Dance, Travel,
Entrepreneurship,
Family

2000 – 2009

Linus Pauling Fellow
PNNL, US DOE

2016 – 2019

Co-founder & CEO
Planette AI

2023 – ??

1996 - 2000

BA in Physics
Rice University

2010 - 2015

PhD, Atmospheric Sciences
MS, Applied Math
University of Washington

2019 – 2024

Assistant Professor
Earth & Ocean Sciences
University of Victoria

Planette AI is a ClimateTech Startup, Mission-Driven to Use the Latest Science and AI to Build Climate Resilience

>$3M total funding

5 team members

15 B2B users

12 expert advisors

>1 PB training data

A Proud NSF SBIR Portfolio Company

NSF — America's SEED FUND — SBIR.STTR

Planette AI's Founding Story

With Dr. Kalai Ramea, Planette co-founder & CTO, SF Climate Week 2023.

The Paradox of the Earth Sciences

Earth Science research is fun, *just because*.

Society *really* needs our science.

The Challenge: Bridging the Gap

What __Science__ Wants
Rigorous, empirical, reproducible inquiry into *how* the world works

What __Society__ Wants
Insightful, valuable technology that *solves* a problem or pain point

Hundreds of Conversations to Understand Societal Needs
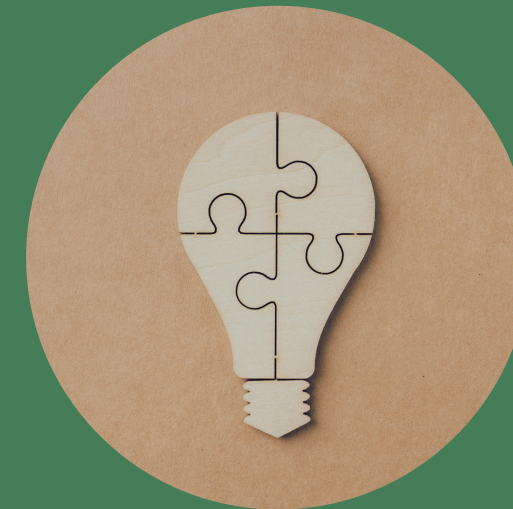
"Nearer"-term >>> Long-term

Humans make decisions over weeks and months, not decades.

Promote Environmental Security

Industries that are environmentally vulnerable need greater certainty.

Be Relevant to Industry's Needs

Insights are more valuable than raw data, regardless of quality.

Productize & Package Insights

Presentation of insights into a digestible format is critical.

How Society Sees Future Outlooks

The S2S2D Gap

?

**Weather Forecasts
(0 - 10 days)**
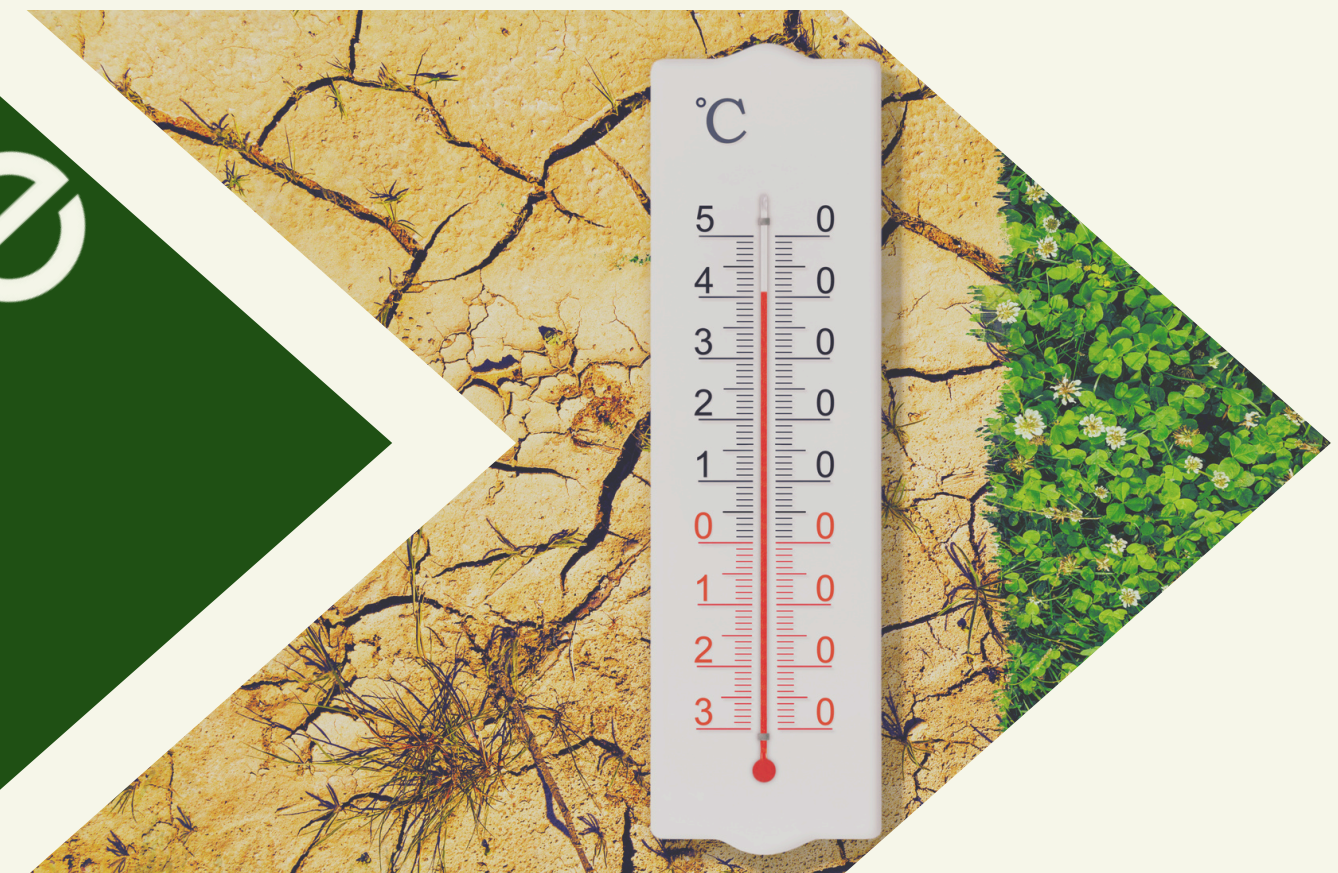
**Climate Projections
(30+ years)**

How Our Work Fits In

**Weather Forecasts
(0 - 10 days)**

**Gap (S2S2D) Forecasts
(1 week - 5 years)**

**Climate Projections
(30+ years)**

AI in the Earth Sciences

Weather forecasting has been revolutionized by AI, *but what's next?*

There are Huge Opportunities for Advancing S2S2D Forecasting Using AI
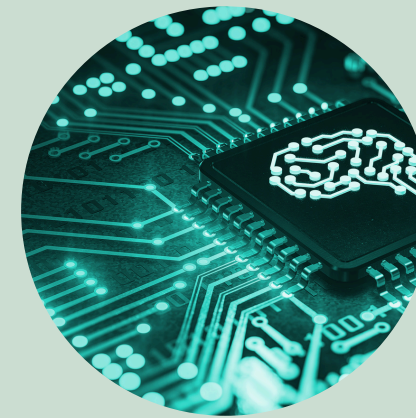

Diverse Datasets

Earth System Model output,
Satellite observations,
Sparse *in situ* measurements
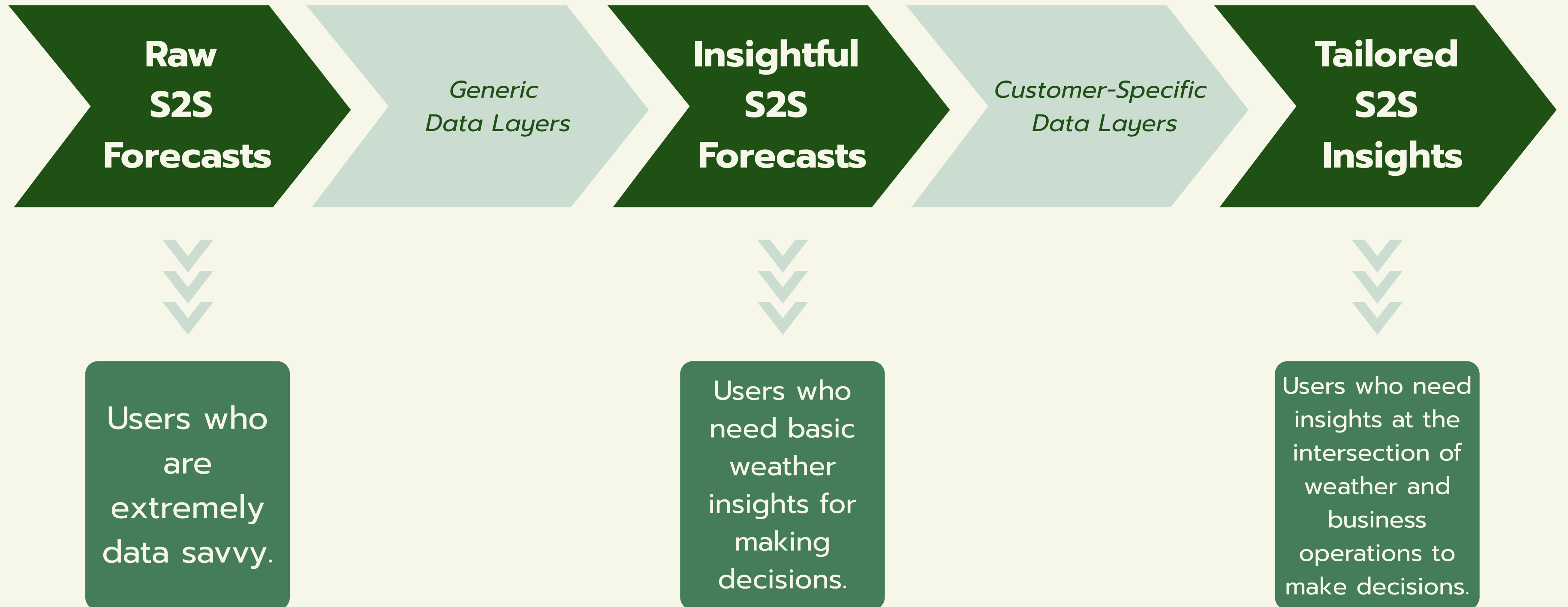
Different Architectures

Exotic neural nets and operators,
Transformers,
Latent space representations

Multiple Modeling Approaches

Brute-force training,
Physics-informed ML,
Foundation modeling

How S2S Forecasts Can Inform Businesses

Raw S2S Forecasts

Generic Data Layers

Insightful S2S Forecasts

Customer-Specific Data Layers

Tailored S2S Insights

Users who are extremely data savvy.

Users who need basic weather insights for making decisions.

Users who need insights at the intersection of weather and business operations to make decisions.

Our Early Customers

Finance

Insurance

Shipping & Logistics

Utilities

Humanitarian Organizations

Pro Bono Forecasts
for Climate
Resilience

Some Unsolicited Advice
for Scientists Who Want to Make Impact

1

Listen to people to understand their problems

2

Work *with* stakeholders (or someone who does)

3

Find a complementary science buddy

Conversations with Farmers

Gamo District, Ethiopian Highlands
April 2025

The Magic & Terror
of Founding a Startup

Create a new strategy and business model!

Nurture your obsessions and compulsions!

Get rewarded when you do your job well!

Stress about everything all the time!

There are *So Many Opportunities* Out There to Make Impact

Big companies that need your Earth expertise

Small, growing companies that are trying cool things

So many new companies and orgs to build

Thank you!

hansi@planette.ai

Please get in touch!