ATMOSPHERIC SCIENCE & SOCIETY

Bridging Atmospheric Science & Sustainable Development

APARC's Role in Achieving the UN SDGs

Translating high-altitude physics into actionable policy for the UN SDGs

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THE APARC MISSION

Atmospheric Processes And their Role in Climate (APARC) initiative links advanced atmospheric research with societal solutions to address global vulnerabilities in food, water, health, and energy systems.

SCIENTIFIC CAPABILITIES

HIGH-RES MODELING

Simulates fine-scale dynamics, stratospheric processes, and multi-decadal monsoon behavior.

GLOBAL OBSERVATIONS

Coordinated monitoring of solar radiation, aerosols, and trace gases via satellite networks.

PREDICTIVE ANALYTICS

Translating complex meteorological data into predictive indicators for extreme weather events.

TARGETED SDG IMPACTS

SDG 2 & 6 — FOOD & WATER SECURITY

- Rainfall forecasting optimizes planting cycles.
- Hydro-meteorological data regulates urban reservoirs.
- Early warnings mitigate drought and flood damage.

SDG 3 — PUBLIC HEALTH PROTECTION

- Anomaly forecasting triggers heat-action plans.
- Boundary layer models map toxic PM dispersion.
- Prepares healthcare for vector-borne epidemic spikes.

SDG 7 — CLEAN ENERGY OPTIMIZATION

- Radiation models improve solar farm siting.
- Wind profiling prevents turbine structural fatigue.
- Weather prediction mitigates grid intermittency.

SDG 14 & 15 — ECOSYSTEM CONSERVATION

- Ocean-atmosphere coupled models inform marine conservation and protect terrestrial biodiversity zones.

SDG 13 · GLOBAL CLIMATE ACTION

Directly contributing evidence-based data to international frameworks and domestic adaptation strategies.

POLICY FRAMEWORKS

- IPCC Assessment Reports
- UNFCCC Policy Frameworks
- National Adaptation Plans (NAPs)

TRANSLATION TO POLICY | PATHWAY: SCIENCE TO ACTION

01 MODELING & ANALYTICS
Generating high-res risk metrics.

02 CAPACITY BUILDING
Training regional met-bodies and planners.

03 POLICY INTEGRATION
Embedding data into regulatory frameworks.

04 COMMUNITY RESILIENCE
Deploying 72h+ early warning systems.