



The Abdus Salam
International Centre
for Theoretical Physics

ICTP:
A Successful Model of International
Collaboration

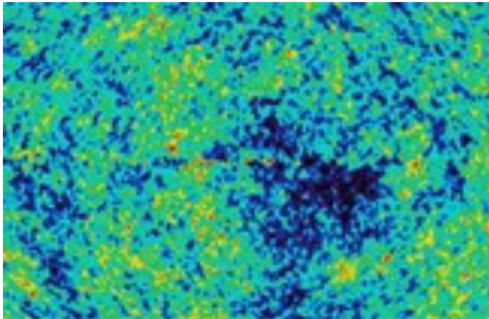


A successful model of international collaboration

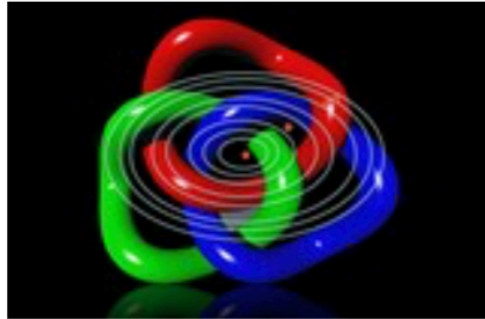
- First and leading *global* institution for scientific research and education (emphasis developing countries!).
- Founded 1964 IAEA+Italian government
(AS: Nobel Prize 1979)
- Since 1995: Tripartite: Italy+IAEA+UNESCO (85% Italy, 10% IAEA, 1.5% +administration UNESCO)



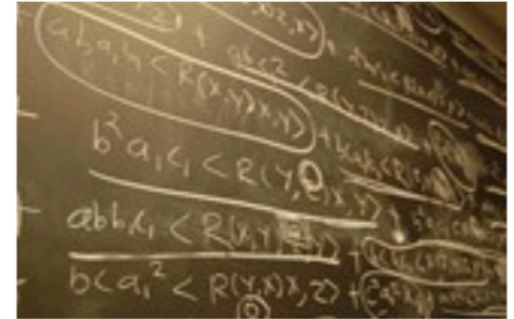
**High Energy
Cosmology and
Astroparticle Physics
1964**



**Condensed Matter and
Statistical Physics
1974**



**Mathematics
1986**



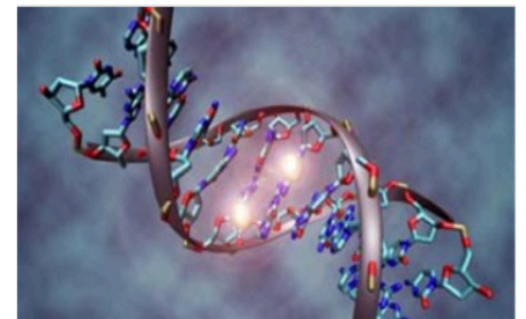
**Applied Physics
1990**



**Earth System Physics
1998**



**QUANTITATIVE LIFE SCIENCES
2014**

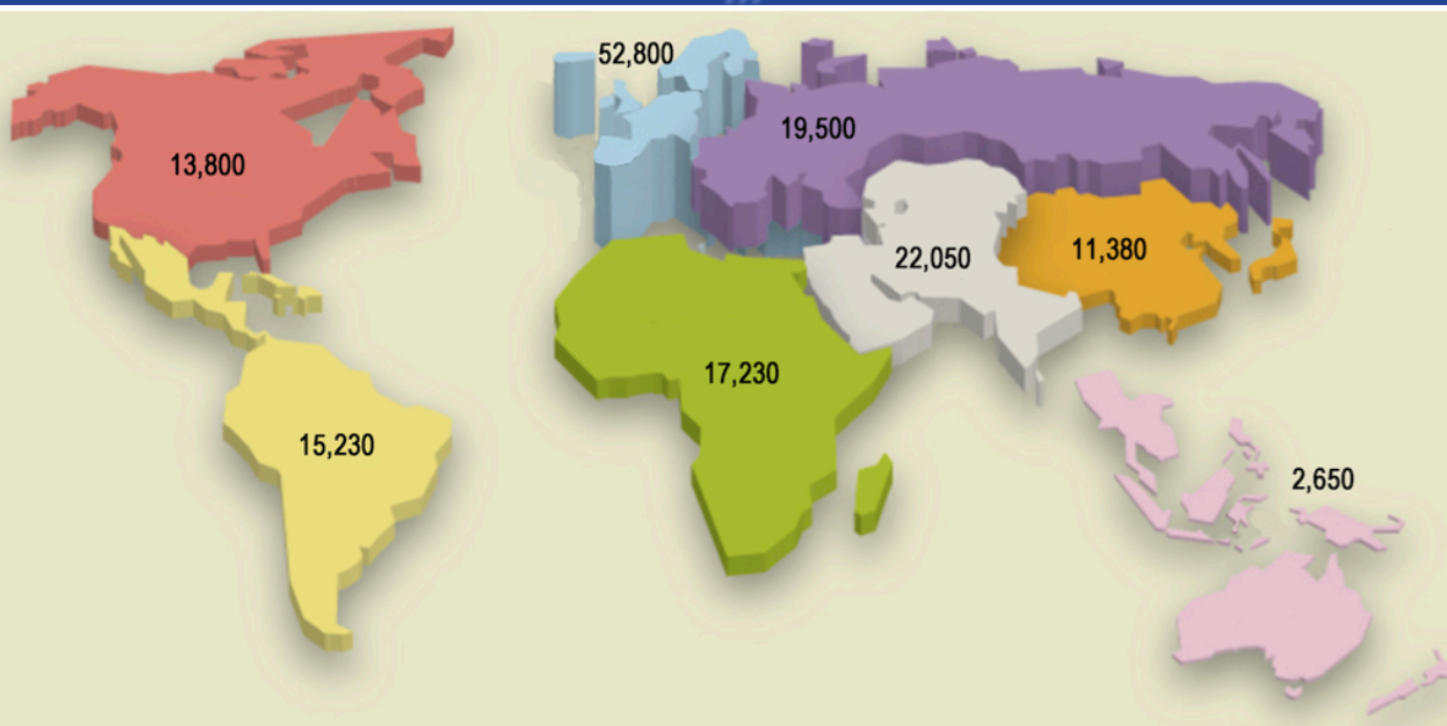


- Telecommunications
- ICT4D
- Multidisciplinary Lab.

- Schools, Conferences, Workshops around the year
(~ 60 at ICTP + ~20 in developing countries !)
- Half of them on subjects related to main research areas (core).
- The rest on many subjects:
medical physics, optics, nano physics, plasma physics, electronics,
high performance computing, biophysics, satellite navigation,
science dissemination and e-learning, m-science,
entrepreneurship, nuclear physics (IAEA), teacher training, 3-D
Printing, etc.



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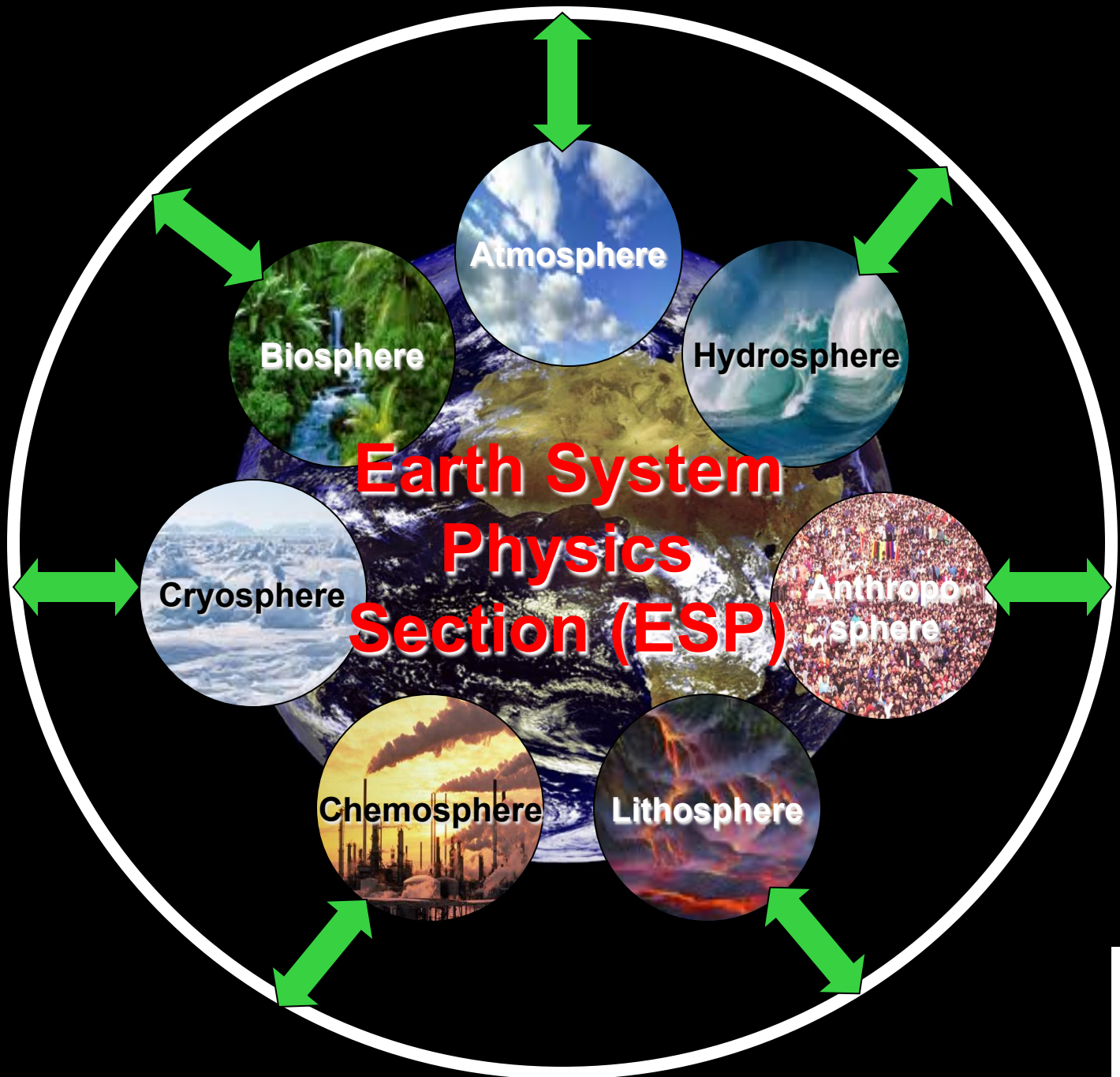


**Number of visits
by scientists from:**

- North America
- Latin America
- Western Europe
- Eastern Europe
- Africa
- Middle East and South Asia
- Far East
- South East Asia and the Pacific

ICTP visiting scientists

- More than 145,000 visits since 1970
- 188 countries represented
- In 2016, 25% of ICTP visiting scientists are women



ESP Main Research Areas

**Computational Earth
System modeling**

**Anthropogenic
Climate Change**

**Natural climate
dynamics and variability**

**Climate impacts on
society and ecosystems**

**Seasonal to interannual
climate predictability**

**Research,
Networking,
Education**

**Chemistry-climate
interactions and air quality**

**Biosphere-atmosphere
interactions**

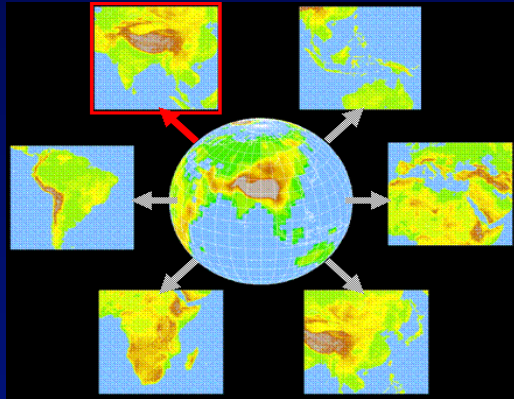
**Structure and deformation
of the Lithosphere**

**Oceanography and
ocean-climate interactions**

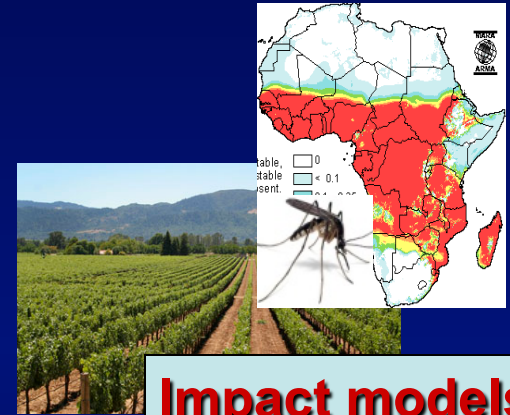
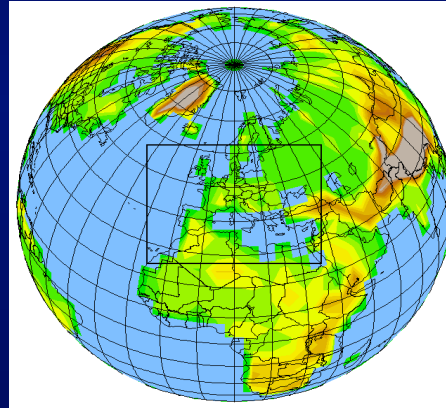
**Earthquake, tsunami
and volcano physics**



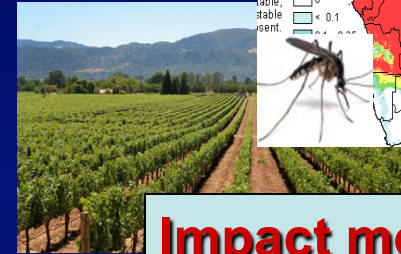
Computational modeling in support of developing country needs



Regional Earth System Modeling (RegCM-ES)



Impact models Health Food Water Land-use

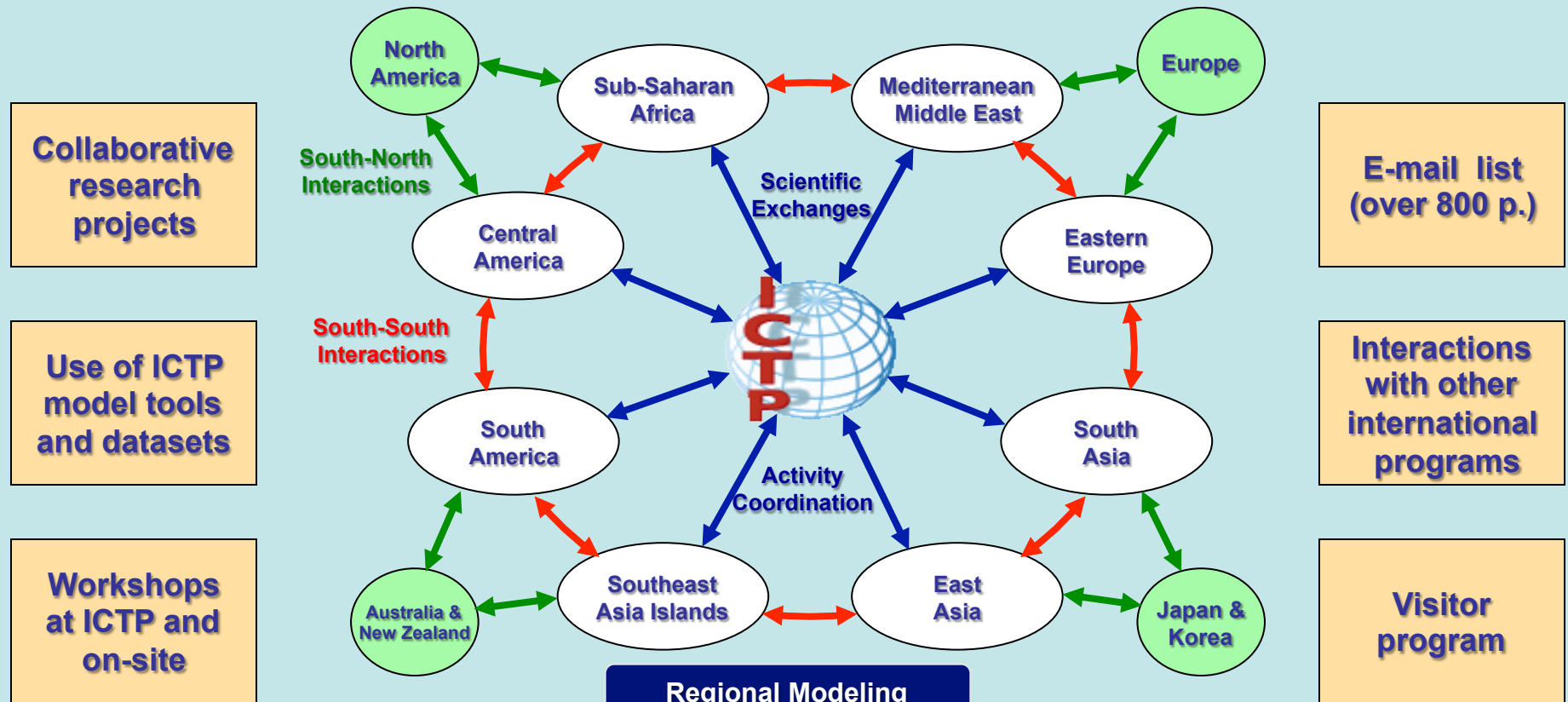


RegCM Tropical Band

Intermediate Complexity Global Earth System Modeling (SPEEDY)

Developing flexible and efficient tools for developing country needs

ICTP/ESP Networking: The Regional Climate research NETwork, **RegCNET**



Regional Modeling

Weather Prediction

Seasonal Prediction

Climate Change

Storms

Flood

Drought

Water Resources

Energy

Agriculture

Landuse Change

Pollution

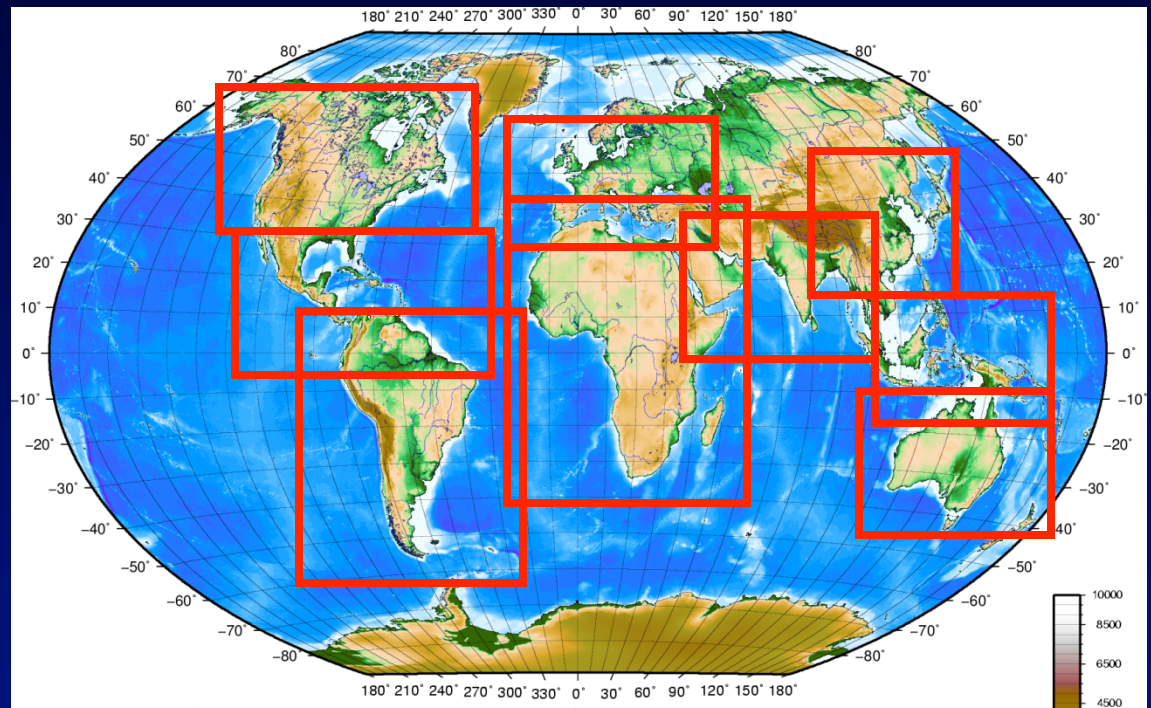
Health

Fisheries

Ecosystems



**ICTP
contribution
to the
CORDEX-CORE**



**Collaboration
across the
RegCNET network**

**6 Scenario simulations (1970-2100)
9 CORDEX domains
RegCM4 at dx=25 km
3 driving CMIP5 GCMs
2 GHG scenarios (RCP2.6/8.5)**

**Most simulations completed at the
CINECA supercomputing centre
~500-700 Tbytes of data produced**



DEVELOPMENT

SOCIETY

**Thank you and have a
fruitful workshop**

ENVIRONMENT