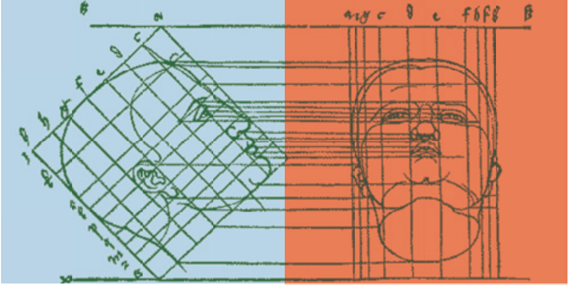
RESEARCH DOMAINS

Climate change and its related problems are characterised by a co
effects and can only be managed in the context of a general transiti
In order to encompass and address all essential aspects, the scie
organised in four major research domains:

1 Earth System Analysis
2 Climate Impacts & Vulnerabilities
3 Sustainable Solutions
4 Transdisciplinary Concepts & Methods



mplex web of causes and
on to global sustainability.
ntific activities at PIK are

Drawing: Albrecht Dürer,
15th Century

Left: In many places agriculture
has to adapt to new climatic
conditions. Photo: Peter Kovacs

Editors: Margret Boysen, Uta Pohlmann   Layout: www.polyform-net.de   as of March 2011

Potsdam Institute
for Climate Impact Research (PIK)
Telegraphenberg, P.O. Box 60 12 03
14412 Potsdam, Germany
Phone: + 49 (0)331 288 2500
Fax: + 49 (0)331 288 2600
info@pik-potsdam.de
www.pik-potsdam.de

THE INSTITUTE

The Potsdam Institute for Climate
Set up in 1992, PIK is regarded
world's leading establishments in
core funding from the federal and
siderable additional project fund
buildings and high performance
scientific giants like Einstein, Sch

More than any other problem hu
ivory tower. PIK has succeeded n
issue of climate change, but in in

Impact Research (PIK) is a member of the Leibniz Association. as a pioneer in interdisciplinary research and as one of the n its field. It currently has around 300 employees and receives d state governments of roughly 11 million euros annually. Cons come from external organisations. The institute's historic computer are situated on the famous Telegraph Hill where warzschild and Michelson pursued their studies.

manity is facing, global warming is urging science out of its ot only in pushing forward the scientific debate on the whole itiating intensive dialogue with and within the public sphere.

Top: Aerial view of PIK's headquarters
Photo: Lutz Hannemann

Front left: The Flood, Simon Bening,
16th Century, www.faksimile.ch

Front bottom: Factory emissions

Inside: Snowy owl

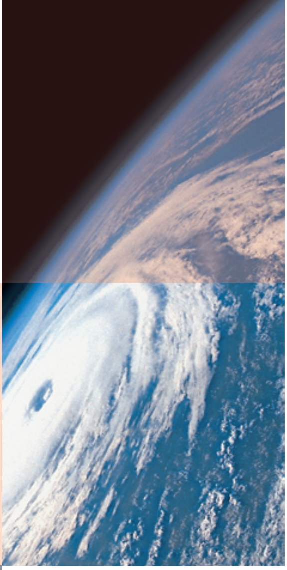
Potsdam Institute for Climate Impact Rese

PIK

ARCH

THE TASK

PIK addresses crucial scientific questions in the fields of global change, climate impacts and sustainable development.
Natural and social scientists work together to assess the Earth system's resilience to human interventions and to devise paths and strategies for sustainable development. The models used and developed at PIK are solution-oriented, their projections forming a basis for decision making in politics, economics and civil society. The main methodologies are systems and scenarios analysis, quantitative and qualitative modelling, computer simulation, and data integration.



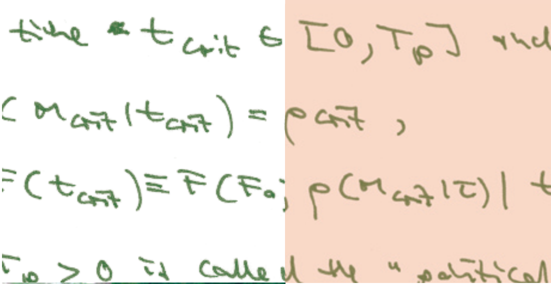
Top: For a hurricane to develop, surface water temperatures need to reach over 26 degrees Celsius. Photo: NASA

Left: Global warming is changing the ice-covered regions of the Earth.

1 The precondition for the research carried o
system. This understanding is founded or
tions between the atmosphere, the ocear
modern Earth System models developed
dynamics of the Earth's climate history. T
global and regional patterns of future clim

2 Vulnerability to climate change differs fro
and from sector to sector. Human-made gl
losers, since the means to adapt to chan
above all – not equally available to everyo
tive effects of climate change can be confi

Heavy precipitation events caused by climate change increase the risk of flooding.



ut by PIK is a thorough understanding of the climate
n the analysis and modelling of the manifold interac-
ns, vegetation and human activity. Simulations with
at PIK have proven successful in reproducing the
These models can therefore be used to also project
nate change.

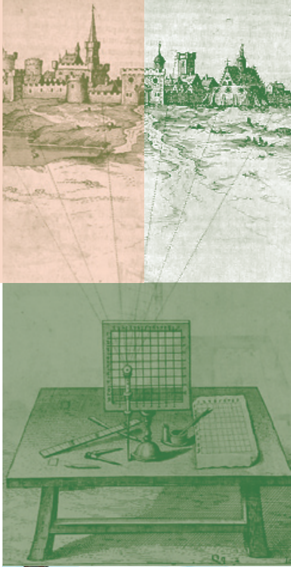
m country to country, from landscape to landscape,
obal warming will produce some winners, but mainly
ged environmental conditions will be limited and –
ne. PIK's investigations identify ways in which nega-
ned and potential opportunities be seized.

Top: More frequent droughts will impede the search for water.

Left: The Amazon rainforest is an important element of the climate system. It could collapse by the end of this century.
Photo: Ana C. Jatahy, Greenpeace

Right: The central perspective was developed around 1450, by using such devices as Albrecht Dürer's grid. Photo by courtesy of the Museum of the History of Science, University of Oxford

Bottom: PIK's Director John Schellnhuber with Federal Chancellor Angela Merkel on the occasion of his appointment as Chief Government Advisor on Climate and Related Issues for Germany's G8/EU twin presidency in 2007. Photo: Tim Hasler, WBGU



3 If modern civilization is not to be exposed to unmanageable risks, global warming needs to be kept within a very limited range. An essential objective of PIK's research is to devise solution strategies that enable society to meet this objective. One of the key questions is the role of different technologies and policy instruments for a sustainable transformation of worldwide energy systems. PIK also explores the growing significance of and the variety of options for adapting to a changing climate.

4 Transdisciplinary research combines science with practice, something which is of overriding importance in the intellectual debate on climate change. To build this bridge, concepts and techniques are needed which reveal the systemic characteristics of the objects of research. This approach, which is based particularly on mathematical and qualitative-discursive methods, has a long tradition at PIK. On the mathematical side, PIK elaborates the application of complex systems and especially complex networks science to the problem of climate change.