

Overview of Social Sciences

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Session Goals

- Overview of Social Sciences
- How to incorporate the social sciences in weather forecasting

What is a social science?

- The social sciences comprise academic disciplines concerned with the study of the social life of human groups and individuals including:
 - Anthropology
 - Economics
 - Political science
 - Psychology
 - Geography
 - History
 - Sociology
 - Communication
 - Linguistics
- Other fields related but generally not considered to be social sciences are:
 - Marketing
 - Business management
 - Law
 - Journalism
 - Philosophy
 - Decision analysis
- Universities throughout the world consider the study of the social sciences as vital for the future of society, and most cater for many degrees in the multiplicity of social science fields.

Anthropology

- Anthropology is the study of human kind, from its beginnings millions of years ago to the present day. Anthropologists look at cross-cultural differences in social institutions, cultural beliefs, and communication styles.
 - Who we are?
 - How we came to be that way?
 - Where we may go in the future?

Anthropology

- Anthropology branches:
 - Sociocultural anthropology: the study of present-day cultures around the world.
 - Ethnography - the approach of collecting data by observing people, talking to them, and participating in their activities.
 - Linguistic anthropology: the study of communication practices in present-day cultures around the world
 - Archeology: learning about earlier cultures by examining the artifacts that they left behind
 - Physical anthropology: learning about humans' biological aspects by examining their skeletal and other physical remains; it includes research on human evolution as well as forensic studies

Example - Anthropology applied to meteorology

- Heather Lazarus – PhD in Anthropology - Univ. of Washington / SSWIM
- Weathering the Waves: Global Climate Change, Livelihoods, and Politics in Tuvalu
- Participant observations / focus groups / ethnographic interviews
 - weather patterns related to social behavior of powerful community leaders



Lazarus conducting focus groups in Nanumea, the northernmost atoll of Tuvalu, in 2006.
(Photo courtesy of Heather Lazarus)

Geography

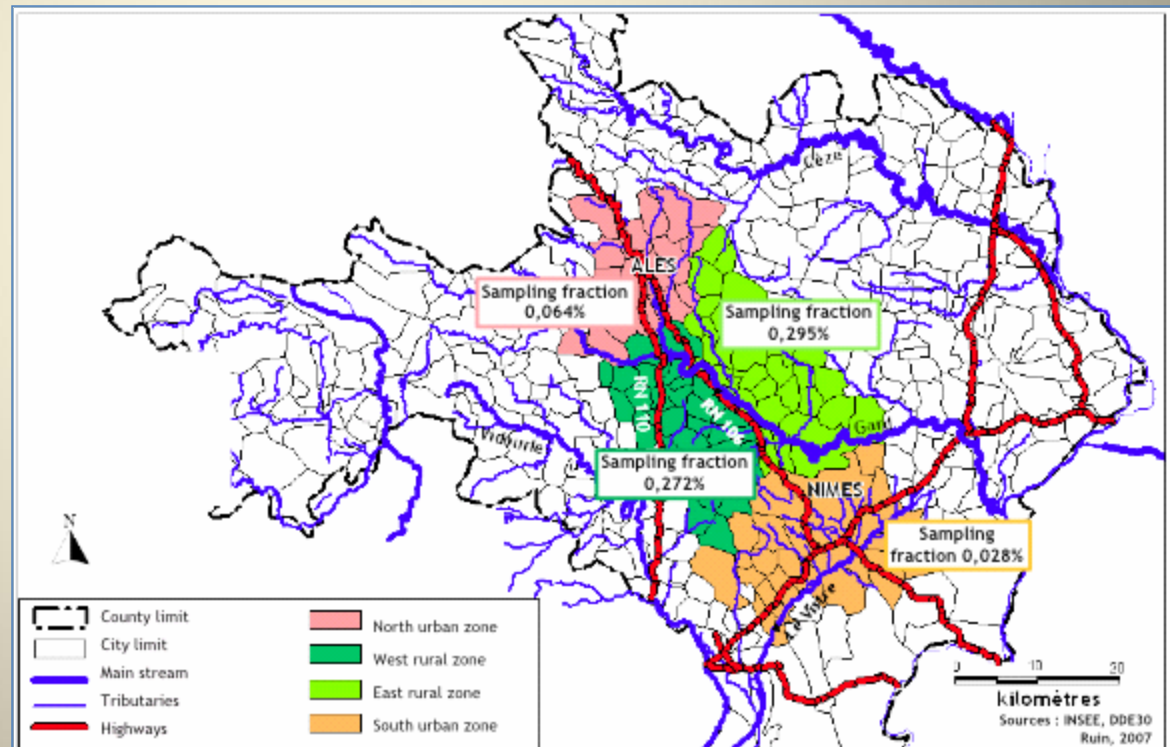
- Geography is the study of the earth and its features, inhabitants, and phenomena.
 - where things are located on the surface of the earth?
 - why they are located where they are?
 - how places differ from one another?
 - how people interact with the environment?

Geography

- Two main branches:
 - *human geography* - concerned with the spatial aspects of human existence - how people and their activity are distributed in space, how they use and perceive space, and how they create and sustain the places that make up the earth's surface.
 - *physical geography* - examines patterns of climates, land forms, vegetation, soils, and water. Physical geographers forecast the weather, manage land and water resources, and analyze and plan for forests, rangelands, and wetlands.
- New field - *environmental geography* - combines physical and human geography and looks at the interactions between the environment and humans.
 - among the first to sound the alarm that human-induced changes to the environment were beginning to threaten the balance of life itself
 - active in the study of global warming, desertification, deforestation, loss of biodiversity, groundwater pollution, and flooding.

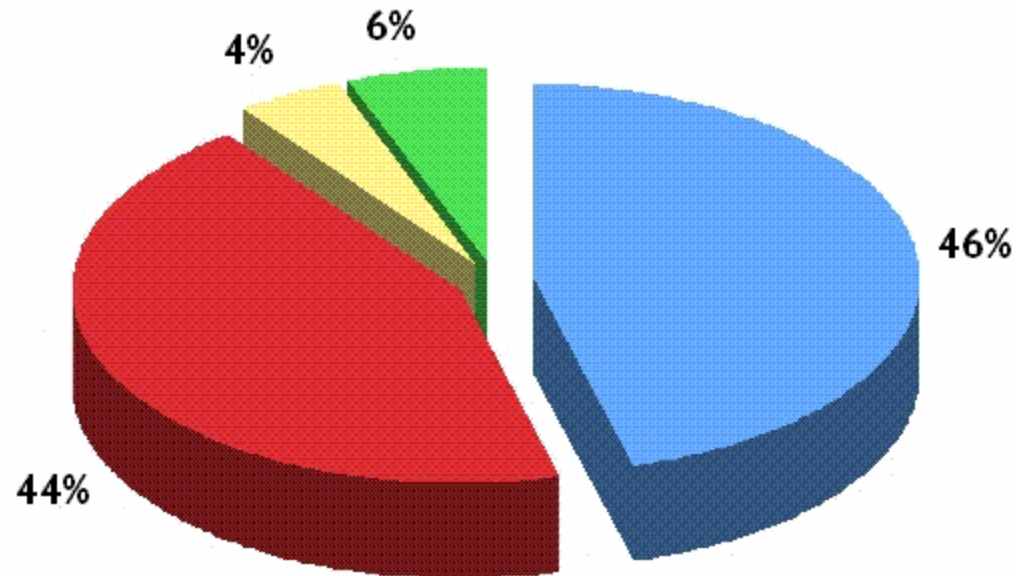
Geography applied to meteorology

- Isabelle Ruin - Grenoble University, France / NCAR ASP Post-Doc
- Why people decide to travel in crisis situation?
- Interviews and surveys



Geography applied to meteorology

Parental reaction to warnings when children are in schools



- Immediately pick up their children
- Nothing, you know they are safe in school
- You ask a relative to pick them up
- Others

Sociology

- Sociology is the study of social life, social change, and the social causes and consequences of human behavior (American Sociological Association).
 - investigate the structure of groups, organizations, and societies, and how people interact within these contexts.
 - concerns itself with the social rules and processes that bind and separate people not only as individuals, but as members of associations, groups, communities and institutions, and includes the examination of the organization and development of human social life.
- Ranges from the analysis of short contacts between anonymous individuals on the street to the study of global social processes.

Sociology

- Branches:
 - social stratification studies inequality and class structure
 - demography studies changes in a population size or type
 - criminology examines criminal behavior and deviance
 - political sociology studies government and laws
 - sociology of race and sociology of gender examine society's racial and gender cleavages
 - many new branches (community studies, computational sociology, network analysis, actor-network theory and a growing list)

Sociology

- Sociology offers a range of research techniques that can be applied to virtually any aspect of social life:
 - case studies
 - historical research
 - interviewing
 - participant observation
 - social network analysis
 - survey research
 - statistical analysis
 - model building etc.

Sociology applied to meteorology

- Hurricane Andrew - 1992 - South Florida
- 55 fatalities / \$56 billion damages (adjusted to 2005)
- Peacock, Gladwin, and Morrow - Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disasters
 - evacuation behavior
 - use of warning information
 - vulnerable populations

Economics

- Economics is the social science that studies the production, distribution, and consumption of goods and services.
- Two main areas of economics include:
 - macroeconomics - focuses on the behaviors of a national economy, or a regional economy, as a whole.
 - microeconomics - Microeconomics examines the economic behavior of agents (including individuals and firms) and their interactions through individual markets, given scarcity and government regulation.

Economics

- Scarcity means that available resources are insufficient to satisfy all wants and needs.
- Economics examines how we make choices: a new car or college tuition? more hospitals or more highways? more free time or more income from work? It gives us a way of understanding how to make best use of natural resources, machinery, and people's work efforts.
- Economics helps us examine trade-offs between various goals and anticipate the outcomes of changes in governmental policies, company practices, or composition of the population, and so on. Almost all issues of public and private policy involve economics and so do your own individual choices.

Connecting the dots

Forecast



Value

- Integrate forecasting and valuation
 - Meteorology
 - Economics

Connecting the dots

Integrating social sciences into meteorological research and practice in a sustained manner:

Weather	<i>Meteorology</i>
▼	
Observation	
▼	
Forecast	<i>Risk Communication</i>
▼	
Communication	<i>Psychology</i>
▼	<i>Geography</i>
Perception	<i>Anthropology</i>
▼	
Use	<i>Sociology</i>
▼	<i>Marketing</i>
Value	<i>Economics</i>