

ARL Contributions to National and International Scientific Assessments

Jim Angell, Melissa Free, Dian Seidel
Air Resources Laboratory, Silver Spring, Maryland

Why ARL participates in scientific assessment activities

- Assessments serve society by evaluating current scientific understanding of environmental issues of importance to decision-makers and the general public.
- ARL research is directly relevant to two of the major environmental science issues of our time: climate change and ozone depletion.
- Assessments are required under US law and international protocols. They are a responsibility of the entire scientific community. ARL does its part by serving as contributors, authors and reviewers.
- Assessments help identify gaps in scientific understanding and are catalysts for new research. Working with colleagues from around the world on assessment reports fosters collaborative efforts to advance understanding.

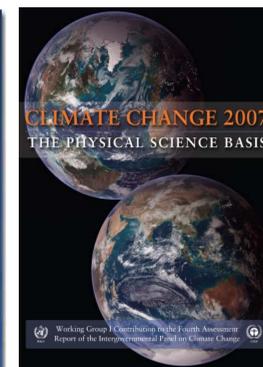
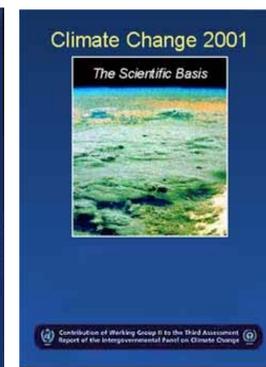
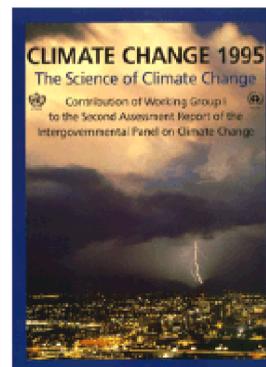
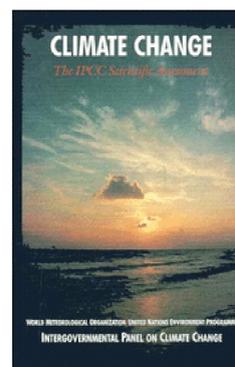


Intergovernmental Panel on Climate Change

Working Group I: The Physical Science Basis

Provides scientific underpinnings of the UN Framework Convention on Climate Change and the Kyoto Protocol

Report	Year	ARL Scientist Roles
First Assessment Report (FAR)	1990	Angell - Contributor
Second Assessment Report (SAR)	1995	Angell, Elliott, Gaffen – Contributors, Reviewers
Third Assessment Report (TAR)	2001	Gaffen, Free – Contributing authors Elliott, Gaffen – Reviewers
Fourth Assessment Report (AR4)	2007	Free – Contributing author Seidel – Expert and US Government reviewer, Member of US delegation
Fifth Assessment Report (AR5)	2013	Seidel – Contributor, Wang – providing regional climate simulations



**Working Group I
Contribution to the IPCC
Fifth Assessment Report**

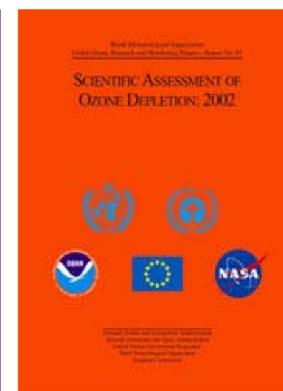
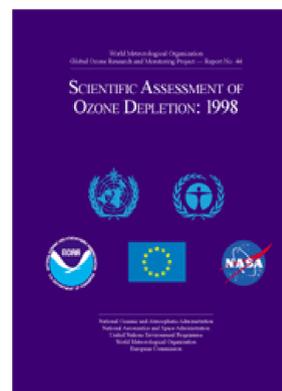
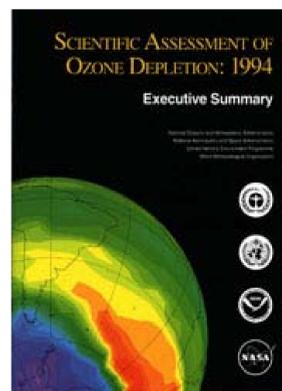
**Climate Change 2013
The Physical Science
Basis**

In preparation

World Meteorological Organization/ UN Environment Programme Scientific Assessments of Ozone Depletion

Quadrennial report to the Parties of the Montreal Protocol on Substances that Deplete the Ozone Layer

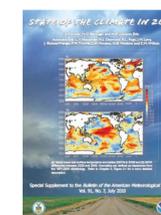
Report	Year	ARL Scientist Roles
International Ozone Trends Panel	1988	Angell – Co-author
Scientific Assessment of Ozone Depletion	1994	Angell – Contributor
Scientific Assessment of Ozone Depletion	1998	Gaffen - Coauthor Angell – Reviewer, Contributor
Scientific Assessment of Ozone Depletion	2002	Seidel – Expert reviewer
Scientific Assessment of Ozone Depletion	2010	Seidel – Lead author, Expert reviewer



State of the Climate Reports

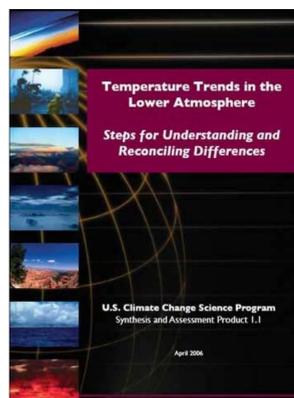
- Annual climate assessment reports
- Supplements to AMS Bulletin
- Formerly NOAA Climate Assessments

Year	ARL Scientist Roles
1990-1996	Angell – Contributor
2007, 2009, 2010	Free – Co-author
2008	Seidel – Co-author



US Global Change Research Program Synthesis and Assessment Product 1.1

- First of 26 USGCRP assessment reports
- Dealt with highly controversial topic of tropospheric temperature trends
- Major involvement of ARL scientists:
 - Angell – Reviewer for National Academies of Science
 - Seidel - Lead author
 - Free – data contributions
- Recognized by NOAA Gold Medal (2007)



World Climate Research Programme

Stratospheric Processes and Their Role in Climate (SPARC) Scientific Assessments

- In-depth, peer-reviewed analyses of stratospheric observations.
- Provide input to WMO/UNEP and IPCC assessments and result in journal review articles.
- Recognized by WMO Norbert Gerbier-Mumm International Award (2003)



Activity	Report
Stratospheric Temperature Trends Assessment Panel	Ramaswamy, V., M.-L. Chanin, J. Angell, J. Barnett, D. Gaffen, M. Gelman, P. Kechut, Y. Koshelkov, K. Labitzke, J.-J. R. Lin, A. O'Neill, J. Nash, W. Randel, R. Rood, K. Shine, M. Shiotani, and R. Swinbank, 2001: Stratospheric temperature trends: Observations and model simulations. <i>Rev. Geophys.</i> , 39, 71-122.
Stratospheric Temperature Trends Assessment Panel	Randel, W.J., K.P. Shine, J. Austin, J. Barnett, C. Claud, N.P. Gillett., P. Kechut, U. Langematz, R. Lin, C. Long, C. Mears, A. Miller, J. Nash, D.J. Seidel, D.W.J. Thompson, F. Wu and S. Yoden, 2009: An update of observed stratospheric temperature trends. <i>J. Geophys. Res.</i> , 114, D02107, doi:10.1029/2008JD010421
Water Vapor Assessment	SPARC Assessment of Upper Tropospheric and Stratospheric Water Vapour , WCCRP N° 113, WMO/TD-N° 1043 (December 2000) (Gaffen, co-author)