

FORUM ON EARTH OBSERVATIONS IV
CLIMATE, ENERGY, AND NATIONAL SECURITY: MEETING THE
ENVIRONMENTAL INFORMATION CHALLENGE

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THANK YOU, NANCY [*Colleton, President of the Institute for Global
Environmental Strategies*] AND GOOD MORNING TO EVERYONE . . .

A LITTLE OVER A YEAR AGO, I SPOKE AT THE NATIONAL
ACADEMY OF SCIENCES SUMMIT ON “AMERICA’S CLIMATE
CHOICES.”

THE THRUST OF MY REMARKS INVOLVED THE
SOMETIMES UNEASY RELATIONSHIP BETWEEN PUBLIC

POLICY AND SCIENCE – ABOUT THE TEMPTATION POLICY MAKERS COME UNDER TO IGNORE SCIENCE, OR SUPPRESS SCIENCE, OR EVEN DELIBERATELY MISUSE SCIENCE.

I DID NOT TALK TOO MUCH ABOUT ITS COROLLARY – THE EQUALLY UNEASY RELATIONSHIP BETWEEN POLITICS AND SCIENCE.

IN RETROSPECT, THAT’S SOMETHING THAT SHOULD HAVE BEEN MORE ON MY MIND LAST YEAR . . . FOUR WEEKS AGO YESTERDAY, I LOST MY PRIMARY ELECTION.

ONE OF THE KEY PLANKS IN MY CONSERVATIVE CHALLENGER’S CAMPAIGN WAS CRITICISM OF MY POSITION ON LAST YEAR’S CLIMATE CHANGE BILL.

NOW, WHAT’S INTERESTING ABOUT ALL THIS IS THAT I VOTED AGAINST LAST YEAR’S CLIMATE CHANGE BILL. IN WEST VIRGINIA, THAT “NO” VOTE TURNED OUT NOT TO BE ENOUGH TO INOCULATE ME AGAINST POLITICAL ATTACK.

MY POLITICAL SIN WAS THAT I REMAINED AT THE NEGOTIATING TABLE AS THE BILL WAS BEING WRITTEN. I

WAS WORKING – WITH QUITE A BIT OF SUCCESS ACTUALLY – TO MODERATE THE BILL’S IMPACT ON THE COAL INDUSTRY AND COAL-FIRED UTILITIES.

I WAS DOING WHAT GOOD LEGISLATORS DO – LEGISLATING – BUT MY OPPONENT AND A STRING OF CONSERVATIVE NEWSPAPERS THAT SUPPORTED HIM PORTRAYED ME AS INSUFFICIENTLY ZEALOUS IN DEFENDING WEST VIRGINIA’S COAL INDUSTRY.

MY “NO” VOTE, BY THE WAY, DOES NOT MEAN THAT I REJECT THE REALITY OF ANTHROPOGENIC CLIMATE CHANGE OR DISMISS THE DANGERS IT POSES. I’VE CHAIRED TOO MANY HEARINGS FEATURING WITNESSES FROM NASA, NOAA, AND ELSEWHERE TO HAVE ANY DOUBTS ON THAT SCORE.

I FULLY ACCEPTED THE PROBLEM. WHAT I – AS A POLICY MAKER, IF NOT AS A POLITICIAN – HAD TO EVALUATE LAST YEAR WAS WHETHER THE SOLUTION WAS, FIRST, EFFECTIVE OR REALISTIC, AND, SECOND, ECONOMICALLY AND REGIONALLY EQUITABLE.

DURING OUR NEGOTIATIONS, WE MOVED THE BILL QUITE A BIT CLOSER TO BOTH GOALS . . . BUT DID NOT QUITE REACH EITHER.

FOR EXAMPLE, THE TARGET OF CUTTING EMISSIONS 17% BY 2020 WAS – AND IS – UNREALISTIC. MANY DEFENDERS OF THE COAL INDUSTRY ARGUE THAT ENACTMENT OF THAT TARGET WOULD DESTROY THE INDUSTRY. PERSONALLY, I THINK THE OPPOSITE IS MORE LIKELY. THE INITIAL TARGET WOULD NOT BE MET – COULD NOT BE MET – AND WOULD HAVE SET THE LAW UP IMMEDIATELY FOR A NEVER-ENDING SERIES OF WAIVERS AND REVISIONS.

I OFFER THIS FIRST HAND NARRATIVE AS A REMINDER THAT THE POLITICS OF CLIMATE CHANGE LAGS THE SCIENCE.

THAT DOES NOT MEAN THAT THE SCIENCE IS COMPLETE. WE FACE CRITICAL CHOICES ON ENERGY AND CLIMATE – BOTH WILL AFFECT OUR NATIONAL SECURITY FOR DECADES TO COME AND BOTH ARE INTIMATELY CONNECTED TO OUR ECONOMIC PROSPERITY.

WHILE WE CANNOT POSTPONE CHOICES UNTIL WE HAVE COMPLETE UNDERSTANDING OF CLIMATE AND ENERGY TECHNOLOGIES, WE MUST HAVE ALL THE INFORMATION WE CAN GET TO GUIDE OUR DECISIONS – INDIVIDUAL, CORPORATE AND GOVERNMENTAL.

MY SUBCOMMITTEE FUNDED THE AMERICA'S CLIMATE CHOICES STUDY TO HELP US GET THAT INFORMATION.

- WHAT ARE THE MOST CURRENT MODELS TELLING US ABOUT CLIMATE CHANGE?
- HOW WILL IT AFFECT THE UNITED STATES?
- WHAT REALISTIC MITIGATION STRATEGIES ARE AVAILABLE TO US?
- HOW MUST THOSE MITIGATION STRATEGIES BE INTEGRATED INTO A WORLDWIDE RESPONSE?
- DO ANY OF THE GEO-ENGINEERING IDEAS HOLD REAL PROMISE, OR ARE THEY JUST ESCAPIST DREAMS?

BUT PERHAPS EVEN MORE IMPORTANT, THE STUDY WILL INFORM A THOUSAND DIFFERENT POLICY DECISIONS LAYERED THROUGHOUT OUR FEDERAL, STATE, AND LOCAL GOVERNMENTS AND OUR ENTIRE ECONOMY –

- IF SEA LEVELS ARE PROJECTED TO RISE BY X INCHES OVER THE NEXT THIRTY YEARS, FOR EXAMPLE, HOW DOES THAT AFFECT WETLANDS RESTORATION ACTIVITIES IN LOUISIANA?

- HOW DO WE PROVIDE WATER TO CALIFORNIA IF THE SNOW PACK IN THE SIERRA NEVADA MOUNTAINS IS SUBSTANTIALLY REDUCED?

- AT WHAT POINT WILL DEPLETED AQUIFERS IN AMERICA'S BREADBASKET FORCE US TO MAKE FUNDAMENTAL CHANGES IN OUR AGRICULTURAL POLICY?

- HOW RELIABLE IS THE HISTORICAL RECORD UNDERLYING FEMA'S FLOOD INSURANCE PROGRAM AND THE AGRICULTURE DEPARTMENT'S CROP INSURANCE CORPORATION?

THE NATIONAL ACADEMY STUDY HAS ALREADY PRODUCED VALUABLE RESULTS. PANELS ON SCIENCE, MITIGATION, AND ADAPTATION HAVE REPORTED. HIGHLIGHTS INCLUDE –

- CONFIRMATION THAT THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC) SCIENCE REMAINS SOLID AND THAT PROJECTED EFFECTS HAVE NOT LESSENEDE;

- MITIGATION AGREEMENTS COULD FOCUS ON CUMULATIVE GREENHOUSE GAS LOADING OF THE ATMOSPHERE RATHER THAN CURRENT EMISSIONS RATES. THIS FOCUS RECOGNIZES THAT IT IS THE CUMULATIVE AMOUNT THAT MATTERS AND THAT EMISSIONS AT ANY ONE TIME MAY REFLECT ECONOMIC CONDITIONS RATHER THAN CONTROL STRATEGIES; AND

- ADAPTATION DECISIONS WILL REQUIRE INFORMATION THAT CAN RESOLVE AND PREDICT CHANGES DOWN TO THE LOCAL LEVEL.

CONGRESS DID NOT PASS A CLIMATE CHANGE BILL LAST YEAR – AND, FOR REASONS SUGGESTED IN MY OWN POLITICAL STORY, I AM NOT OPTIMISTIC THAT WE WILL PASS ONE THIS YEAR.

THAT DOES NOT MEAN THAT WE HAVE DONE NOTHING. AS AN APPROPRIATOR LET ME POINT TO FUNDING COMMITMENTS THAT HAVE BEEN MADE AND THAT ARE REQUESTED FOR NEXT YEAR.

THE AMERICAN RECOVERY AND REINVESTMENT ACT INCLUDED –

□ \$325 MILLION FOR NASA'S EARTH SCIENCE PROGRAM,

□ \$121 MILLION FOR CLIMATE CHANGE R&D AT NSF, AND

□ \$218 MILLION FOR NOAA COMPUTER SYSTEMS THAT WILL SUPPORT CLIMATE PREDICTION AND RESTORATION OF TWO CLIMATE SENSORS THAT HAD BEEN DROPPED FROM FUTURE POLAR ORBITING OPERATIONAL SATELLITES.

FOR FISCAL YEAR 2010, THE CONGRESS PROVIDED AMPLE SUPPORT FOR R&D, OPERATIONAL AND EXPERIMENTAL OBSERVATIONS, COMPUTING RESOURCES, IMPROVED PREDICTIONS AND DATA PRODUCTS, AND INFORMATION SYSTEMS TO SUPPORT ALL OF THESE ACTIVITIES.

SPECIFIC ITEMS RANGE FROM –

□ \$1.4 BILLION TO FUND THE OVERALL EARTH SCIENCE PROGRAM OF NASA,

□ ALMOST \$2.4 BILLION FOR NOAA'S NATIONAL ENVIRONMENTAL SATELLITE DATA AND INFORMATION SERVICE (NESDIS),

□ \$25 MILLION TO THE ECONOMIC DEVELOPMENT ADMINISTRATION FOR THE GLOBAL CLIMATE CHANGE MITIGATION FUND, ND

□ \$14 MILLION FOR NSF TO BEGIN THE OCEAN OBSERVATORIES INITIATIVE.

CLIMATE CHANGE RELATED BUDGET REQUESTS WERE FUNDED ACROSS THE BOARD.

PRESIDENT OBAMA'S BUDGET REQUEST FOR NEXT YEAR DEMONSTRATES THAT THIS ADMINISTRATION UNDERSTANDS THE FRAGILE CONDITION OF THE RESEARCH AND OPERATIONAL SATELLITE OBSERVING SYSTEMS AND THE NEED FOR ENHANCED GROUND AND OCEAN BASED LOCALIZED OBSERVATIONS.

NASA EARTH SCIENCE IS PROPOSED FOR AN INCREASE OF \$390 MILLION OVER FISCAL YEAR 2010 AND GROWTH OVER FOUR YEARS THAT WILL RESTORE THIS PROGRAM TO THE \$2.2 BILLION BUYING POWER IT HAD IN THE LATE 1990'S.

THIS INCREASE IN FUNDING WILL ACCELERATE TWO OF THE DECADAL MISSION LAUNCHES BY TWO YEARS AND ALLOW NASA TO BEGIN WORK ON OTHERS WHILE SOLICITING SATELLITE PROPOSALS FOR MORE MODEST MISSIONS TO STUDY EARTH'S ENVIRONMENT.

NSF CLIMATE CHANGE R&D IS SLATED FOR AN INCREASE OF 16%. THE OCEAN OBSERVATORIES REQUEST IS \$90 MILLION AND THE NATIONAL ECOLOGICAL OBSERVATORY NETWORK (NEON) WILL GET UNDERWAY WITH \$20 MILLION IN EQUIPMENT AND FACILITY FUNDING.

THE OBAMA ADMINISTRATION HAS ALSO MOVED TO FIX THE MANAGEMENT OF THE POLAR ORBITING ENVIRONMENTAL SATELLITES PROGRAM. DEFENSE AND NOAA WILL RETURN TO THE PROVEN APPROACH OF INDEPENDENT DEVELOPMENT OF THEIR RESPECTIVE SATELLITES BUT WITH COMMON OPERATION OF THESE SATELLITES AND THEIR DATA SYSTEMS PROVIDED BY NOAA.

THE PRESIDENT'S REQUEST ALSO INCLUDES THE EXTRA FUNDING FOR NOAA TO PROCEED AS QUICKLY AS POSSIBLE TO READY ITS JOINT POLAR SATELLITE SYSTEM-1 FOR LAUNCH IN 2014 WITHOUT COMPROMISING THE FUNDING OF THE GEOSTATIONARY OPERATIONAL SATELLITES.

OUTSIDE THE JURISDICTION OF MY SUBCOMMITTEE, LANDSAT OPERATIONS AND DATA PRODUCT PROVISION ARE

RECOMMENDED FOR SIGNIFICANT FUNDING THROUGH THE US GEOLOGICAL SURVEY.

WHILE THE FUNDING ENVIRONMENT IS CHALLENGING AND THE TOTAL REQUEST FOR GOVERNMENT R&D IS LEVEL, THESE INCREASED REQUESTS DEMONSTRATE THE SERIOUSNESS OF UNDERSTANDING, OBSERVING, AND PREDICTING CLIMATE CHANGE WITH GROWING ACCURACY AND FINER SPATIAL RESOLUTION.

SIGNIFICANT CHALLENGES CLEARLY REMAIN. ALL CLIMATE ASSESSMENT WORK SHOULD BE AND WILL BE SUBJECT TO THE CLOSEST SCRUTINY AND CLIMATE CHANGE SCIENTISTS MUST ALL WORK TO THE HIGHEST STANDARDS OF INTEGRITY.

THE DIFFERENT FIELDS OF CLIMATE RESEARCH ARE NOT EQUALLY MATURE. ATMOSPHERIC SCIENCE AND OCEANOGRAPHY HAVE LONG EXISTED AND HAVE SUPPORT INFRASTRUCTURE WELL ADAPTED TO THEIR NEEDS.

THE SAME CANNOT BE SAID OF TERRESTRIAL ECOLOGY, HYDROLOGY, AND SOIL SCIENCE TAKEN IN THE CONTEXT OF CLIMATE CHANGE. UNFORTUNATELY, THESE ARE THE VERY AREAS WHERE VARIATION HAPPENS ON THE FINEST SPATIAL SCALES AND THE INTERACTIONS WITH HUMAN SOCIETY ARE AS INTIMATE AS THOSE OF THE WEATHER.

MANY PEOPLE TALK ABOUT REGULATING OR PRICING CARBON, BUT STEPS TO SEQUESTER OR OFF-SET CLIMATE EMISSIONS WITH NATURAL PROCESSES ARE YET TO BE PROVEN.

AS A COAL STATE REPRESENTATIVE, I CAN ASSURE YOU THAT I HAVE HIGH HOPES FOR CARBON CAPTURE AND SEQUESTRATION. AT THE URGING OF CONGRESS NASA IS UNDERTAKING TWO PILOT EFFORTS DEALING WITH CARBON – ONE TO ASSESS STANDING STOCKS OF ABOVE GROUND CARBON AND ANOTHER TO ASSESS SURFACE CARBON FLUXES. CLEARLY, THE SYSTEM WILL NEED ASSESSMENTS OF BELOW GROUND CARBON AS WELL.

TO HOLD INDIVIDUAL NATIONS RESPONSIBLE FOR THEIR CONTRIBUTIONS TO GREENHOUSE GAS LOADING OF THE ATMOSPHERE, WE ALSO NEED THE ABILITY TO TRACK TRANSBORDER FLUXES OF THESE GASES. WHILE THERE ARE NUMEROUS IDEAS ABOUT HOW TO DO THIS, CONVERGENCE ON A TRUSTED SYSTEM IS STILL SOME TIME OFF.

FINALLY, SCIENTISTS ARE TELLING US THAT CLIMATE CHANGE EFFECTS HAVE BEGUN AND WILL INCREASE DUE TO THE CHANGES ALREADY MADE TO THE COMPOSITION OF THE ATMOSPHERE.

WHILE WE ARE INVESTING CONSIDERABLE FUNDS TO MINIMIZE EMISSIONS AND MITIGATE CLIMATE CHANGE, WE LIKELY WILL HAVE TO ADAPT OUR INFRASTRUCTURE AS WELL.

TODAY, MORE CRITICAL ENVIRONMENTAL DECISIONS ARE MADE BY LOCAL BODIES CHARGED WITH MAKING LAND USE DECISIONS THAN ARE MADE AT EPA. THIS WILL NOT CHANGE. CITIES, COUNTIES, REGIONAL GOVERNMENT ORGANIZATIONS AND STATES ALONG WITH INDIVIDUALS

AND THE PRIVATE SECTOR WILL ALL CONFRONT DECISIONS – INVESTMENT DECISIONS – THAT SHOULD BE INFORMED BY RELIABLE, LOCALIZED CLIMATE PREDICTIONS.

THESE RANGE WIDELY FROM INDIVIDUALS DECIDING HOW MUCH INSULATION IS COST EFFECTIVE FOR THEIR HOUSE TO CORPORATIONS SITING MANUFACTURING AND DISTRIBUTION FACILITIES AND WATER AUTHORITIES DECIDING TO BUILD RESERVOIRS. CLEARLY MORE GRANULAR ENVIRONMENTAL OBSERVATIONS WILL BE NEEDED TO FEED FINER SPATIAL SCALE MODELS AND DELIVER LOCALIZED PREDICTIONS.

MANY OFTEN CITE THE FROG IN HOT WATER STORY AS A PARABLE FOR MANKIND'S RESPONSE TO CLIMATE CHANGE. IN IT GRADUAL CHANGE IS IGNORED UNTIL IT IS TOO LATE AND THE FROG IS COOKED.

WE ARE NOT FROGS. WE HAVE THE ABILITY TO LOOK AHEAD AND TO PREPARE. OUR CHALLENGE IS TO DO SO AND TO HAVE THE WISDOM TO ADAPT.