Notes from Oct 1999 UCAR Members Rep Meeting

Visualization workshop
Fritz Hasler talk:
7.5x10 foot screen for individual "IMAX." view 1280x1024.
7.5x20 for a small audience.

1yr global geo 30 min 4km 5 satellites	764 GB
1 HDTV Hollywood movie:	1 Tb

data rates:

scisi ultra 2 winde	80 MB/s	striped fiber channel	145 MB/s
RAM dislay 8 GB	250 Mb/s	100 Base T	12.5 Mb/s

HDTV rates:

uncompressed	1500 Mb/s	100 BaseT	100 Mb/s

datasets:

AVHRR 1 km data	2.4 Gb:	40 000x20 000
global 15m Landsat 7	1280 Gb	

sgi onyx2 ir 4 cpus 8gb ram terabyte disk for their presentation

use morphing to bridge data gaps in the satellite imagery

320x240 to play well on a laptop

use arrow keys to change months (left/rt) or years (updown) using MS movie in powerpoint? (Later was told this **moving through a matrix of images** was a 10 MB quicktime virtual reality movie. Also, that one can see the Apple QT web site to find out how to do it with a helper attached to the latest QT.) Roam around on the one image? they took the frames and set them up to be pointed at.

Spengler talked about the comet modules
hydrologic data illustrated with equn and picture.
showing data from previous runs provide first guess for a model in a mini animation.
conceptual model of tornadic thunderstom, but uses **3d studio max program used by a graphic artist. obviously takes a long time. the 30 sec animation took 4 people quite a while**
future directions: more compression of images. Use of VRML on a laptop 3d image that can move around in. -- may not run smoothly within a powerpoint presentaiton. Nontraditional interfaces, like a tactile glove that can reach into .

Don Middleton talked about the new Visualization Lab**.**
VRML driver to be added to vis5d can take a vis5d sequence and click "save to vrml" it may be released in a month or so, check the vis5d web site. vrml may be succeeded by x3d.

Bob Wilhelmson:

geoscience eduacation "pyramid"

1. phenomena what

2. processes &
3. building blocks why
4. fundamental principles

1. e.g. hurricane
2. ageostrophic and adibatic motions
3. ?obs? numeical models?
4. Newton's laws

They want to create a geosciences digital library.
http://www.page.ucar.edu/gdl/ (central location for info)
http://geo_digital_library.ou.edu (directions for future digital library design)

k5d tchnology allows (several people at a time) to walk around in a 3-d virtual reality. including markers for other people in the 3-space

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UCAR MEETING

Anthes advocacy comments. various current issues -- advocacy report? see his report. They have oga web site: www.ucar.edu/ucargen/oga They gave giant pencils to "winners" in the email contact of congress re issues. **Our community had some roll to the 7% improvement to RRA at NSF. Certainly had result of 10 mil incr for hiaper.**

Former US Rep. Dave Skaggs re demystify congressional office. whimsical document.cc your message to your institutional liason wiht congress. Letters& email are good -- but is a vast mass, phone better -- if have relation with a staffer., visit the local office even better, best is luring congress rep to your lab. Visit to their wash DC office is *not* rec -- little "quality time" SO time between thanksgiving & Feb is more likely to get 10-15 min. Call office ask for scheduler to get acquainted. To let him know about what you are doing that is federally funded. Keep trying to set up a meeting. Visit to your office will be greased by media attention. We are in the health safety and survival business. Steinbrenner axiom: easier to change the players than the minds of the players.

40th anniversary
Firor: started really in 1956 with idea of an institute of theoretical geophysics; a small meeting held. the atm attendees pursued it. the research tasks got too large for single researcher. univ committee for atm science. (UCAR). etc.document proposing institute written in 1959.
Regarding teaching. make sure student becomes an expert in something -- so that they can actually do something. But also inculcate broad knowledge of other areas so that they can be familiar with the language & issues of fields with which they are likely to form interdisciplinary groups.
how many profs needed to change a lightbulb? ....change..?

Dutton: BASC report -- for public sector leaders, private sector users, educa. colleagues. Wea pred & storm dyn -- chaired by Emannual. Climate dyna & var -- chaired by E. Barron. **"Opportunities exceed resources so choices must be made" 4 areas of national well being were those that became the 4 break-out groups.**

Imperative 1: opt. global atm obs & models. Monitor & obtain information needed. Convert codes to efficient operation on multi-processor machines.
Imperative 2 devel new obs capabilities, relevant to applications USWRP & USGCP. Apply forecasting approach to other areas. collaborate on emerging isses.

(future forecast system) Met variables numeical forecasts
num analysis -- 4d decision aides of impact variables
user computer decision process (numerical)
decision make to confirm action

what is partnership putting together for the benefit of the community? develop benefit & costs What to do when value of weather data motivates others to put a cost on it?

Corell: task force on the environment: NSB task force to review scope at NSF & policy guidance. Two overarching & 10 topical recommendations frame a timely agenda for action. new agenda with life of decade or so.
1 Strongly endorse NSF fundamental leatership role and needs for resources.
2 Env res., ed & assessment must be increased by factor of 3.
3 Integrate accross the NSF the sci research, ed, and assessment agenda.
4 Enhance disciplinary base. Strengthen interdiscp portfolio, and increas long-term research support. (includes obs & data assimilation)
5 Envir education at all levels.
6 Increase assessment prioritieze & synth sci knowledge.
7 Infrastrucuter: obs, collections, new info networking.
8 Envir technolo & enabling technologies (instr, facilities, obs platforms, innovative tools)
go to NSF homepage for task force to comment on doc before November.

geo2000: geo over 10 yr horizon. **instead of national security & health. now to meet other priorities such as competitiveness(?) understanding, obs & predicting**. The NSF goal now starts with "To benefit the nation...." **7 areas**:
1 Planetary structure,
2 Planetary energetics & dynamics,
3 Planetary ecology,
4 Planetary metabolism,
5 Prediction of harzardous events,
6 Assessment of environmental quality,
7 Precition of longer-term change & variability.

personal remarks: **integrate with other disciplines that relate to atm.-- broaden the perspective, take advantage of the broad foundation. 4 issues move congress: health, safety -- institutions people etc, jobs, and environment. Now envir a powerful force in congress, particularly where climate change is a public issue.** Newt's laws: 1) "***footlocker syndrome***" tendency to give details rather than what they need to do to set public policy 2) ***lion & "chipmunks***" -- not enough energy from a chipmunk to justify effort -- keep big problems in mind.

breakout session 4- what is community to do to accomplish the other goals?? to fit within the structure & new reality?? ***Discussion of more than 40 mins on what is purpose of the session***... Imperatives of the basc is to devel new obs so need to use these new toys (duh.. or as fred carr puts it: mom & apple pie statements?) what would we do if we had a choice? What do we need to know -- therefore what wold be measured & how...Much discussion about doing basic vs applied or linking our research with some key problem.

DAY 2
Univ relations report: **NRC will rank univ atm sci depts. every 10 years ranks. info gathering started in June 1999 will last for 3 years**. Q's about def of atm scicences program, how to handle interdisc activities, impact on field?
new issues: prob of new grad students cancelling RA just before semester. general lack of understanding by people outside of ucar/ncar to be in future bams article (??)

advocacy & approp update: **nsf did very well. ITR was fully funded (it 2). hiaper is additional 10M. increase for each research directorate small but +. biocomplexity got most of increase. nasa was down 1B out of house, but most restored in conference**. NOAA not yet complete. social security surplus is loaned out every year, but is now a pol ftball... Academic pork: 300 M in NASA earmarked. No earmarking in NSF or NIH, despite the pressure***. Generally scientists do better with republicans*** -- less on their domestic agenda. VA/Huc/indep agencies is wheref NSF-NASA-EPA. competes. **Pending legis**: database protection, a-110 final regulations (freedom of info act access but limited: must be cited in a regulation & published then can get your data) NWS competition w/ private sector, federal acquisiton regulation -- blacklist those corps not in compliance with any aspect of federal law. basic distrust of us: should we share more, not compete, with businesses....

advocacy plan for next year. see the advocacy document.main focus NSF-geo, also IT & biocomplexity initiatives. NOASS - nws, ncep, off atm res, privatization of ws legislation. USWRP -- noaa senior management not engaged w/ this, USGCRP NASA, FAA, DOE, data use issues.
issues to monitor:
1 NRC doc progrm ranking, 2. wind profilers problem,
3 instrument devell & student training.
They have web page w/ up to date info -- find on ucar homepage. contact ucar people via email is best.
nie initiative? Margraet Leinen heading nSf group to implemented within nsf. now CNIE advocates for another agenciy to collect existing programs -- reorganization rather than 'new energy'.

nsf report: search for nex **geo AD, Margaret Leinen**. oceanographer
and **atm AD:seach commte** will review... selection by asst AD and NSF director.
budget fy2000 3,910M budget. incr of 240M**. 6.5% incr ovr fy99.**research & related 7.1% incr (196M incr) for NSF. **Hiaper to come from MRE**. Staff has remained constant but the budget doubled. **105M for IT research (ITR)** -- intent for more than just computer sci but not a lot. Couple your proposal w/ your computer sci dept.. **50M for biocomplexity**.to be manged out of bio sci directorate. Potential **new ship** for arctic icebraeaking.
hiaper got 10M out of 95M due to lots of prep work-- total to be 70+ million. also **polar aircraft upgrades and south pole station modernization**. also 36M terascale computing system -- though not likely that NCAR would get much out of that.
re fastlane: they want feedback. re how graphics are handled..send someone their email.—but not to ATM! Re: UNIDATA equip: had $ left over!

anthes ucar pres report. see his report. other things not in his report. COSMIC -- probs with taiwan- they treat as commercial contract. with clauses that holding things up. **GPS met -- most soundings(90%) do not sample bndy layer -- may be fixable with improved tracking**. Bldr res ad netwk up to 900,000 Mb/s (9k times the existing rate). soars seems successful -- high retention rate into phd & ms programs (85%). **HIAPER potential aircraft** B737 business jet, citation business jet, German falcon, military derivative of the gulfstream G4. -- alt & endurance being hgihest priority.

Hope to announce award a year from now. **Supercompter hist @ NCAR. Now vector computers not avail to the community. so transition to massively parallel computer atch**. Compaq es-40 cluster e.g. **Now have IBM 160 nodes RS 600 2 proc ea**. **current models on it include LES (OSU)**. Dec 99 doubling proc, apr 00 1.5 Tflop.. will also install a compaq es-40 8 proc.
searches for acd & ncar ADs ongoing. very long list developed. interviews dec/jan w/ announcement feb/march.
UPOP prrograms. comet had 10th year. met ed web site -- freebee 250,000 hits/mo.. PAGE -- geosci digital library for all of geosci. another is virtual exploratorium -- sci visualization & explore best classroom practicies. Vis Sci Prog. -- **70 postdocs in global chnge over past 10 yrs**. JOSS 3 exper and codiac -- 65k hits/mo. UNIDATA - 150 colleges particpate in unidata. SuomiNet -- costsahring gps network for atm research. can participate for met or met+geo data. Will combine with NOAA network to get 100's of these sites.

forum summaries
protection of life and property:
establish partnerships, assess needs of users, establish priorities & goals, (use USWRP paradym) conduct proof of concept, knowledge transferof tech advances, iterate on process by assessing. Barriers to progress: ineffective paths to operations, inter-agency interactions, wall between private sector & others, historical inertia

maintaining envir quality
include global env chg & air quality. lack of mech for fostering interdisc res. failure of app coor across programs (DOE regional climate programs vs NASA resac which seem to overlap w/out coordination) harmonization of datasets archiving climate model data and maintaining app metadata -- computer storage isssues. Instrumentation & obs -- to serve wider variety of res puproses. *lack of training for instr speialists at univ and decaying knowledge base for what & how to use the data*. further integ obs w/ modelling. Take addvantage of other fields tech advances e.g. nano tech. Explor links between gov/univ/mfr as is common in planetary or satellite instruments.

enhancing econ vitality
focussed on "productivity variable" Competitive priorities were cost, then quality, then delivery speed & agility to respond. more stategic allianцs continuous dialog to learn what customer wants. emerging opportunities (emissions trading, health sci & policy, recreation, "weather derivatives") mainly devel tech largely used by large farm operations bps/cont yield meas/remote sensing/etc. media want customized (local) product. tutures trading/weather derivatives hedging of risk Document success stories, including prof organizations for client industries
learning how to work w/ partners to enhance indus broadly (implementing these ideas) outreach PR??? A big issue is conficence in the info we provide. Europe has much greater concern re global warming than typical of us. Another issue is regulation.....
are human resources adequate try to devel credible envir for cross disc work, internships, pulishing outlets. are the NSF S&T centers meeting our needs?

basic research
how can partnerships strengthen research, is it important to the country, are funding agencies too much on focuessed rather than fundamental res. Is funding RAs better done by scholarships.
Institutionalization of science -- easier to get funding projects w/ clear application
Declining quality & quantity of students -- vague comments