Career Opportunities in Air Quality

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Outline of Discussion

- My Journey: Jobs I Held Along the Way
- Options: What You Can Do
- Current Issues: Questions on the Table
- Summary
The Journey

- Undergraduate Career at Texas A&M
- Private Weather Forecasting Company
- Graduate Career at Texas A&M
- Environmental Consulting Firm
Undergraduate Career

- **Student Tech – Mesoscale Group**
  - Ran Aggie Doppler Radar (ADRAD)
  - Texas-Florida Underflights A (TEFLUN-A)
  - Kwajalein Experiment (KWAJEX)
Private Sector Forecasting

- Weather Research Center
- Student Intern, then Forecaster

2007 OCSI Atlantic Hurricane Season Outlook

Louisiana to Alabama coast has 70% chance of experiencing a landfall of a tropical storm or hurricane in 2007.
West Coast of Florida and the Georgia to North Carolina Coast have a 60% chance of experiencing landfall of a tropical storm or hurricane.
Expect 7 named storms with 4 intensifying into hurricanes.
Graduate Career

- Aerosol Research Group (Dr. Collins)
  - Particle Hygroscopicity
  - EPA Supersite & TexAQS 2000;
  - ARM Aerosol IOP (Billings, OK – 05/2003);
  - IDEAS-3 (Boulder, CO – 09/2003)
Environmental Consulting Firm

- Source Environmental Sciences, Inc.
  - Support for Clients
    - Air/Water/Waste Permitting
    - Regulatory Guidance
    - Air Dispersion Modeling
  - Forensic Meteorology (Environmental CSI)
Career Options: Air Quality

- Undergraduate Forecasting
- Graduate Consulting
- OPTIONS Research Government Industry Consulting
- CURRENT ISSUES Climate Nonattainment Inventories
- SUMMARY

REWARD | AVAILABILITY | RISK | EXPECTATIONS

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Career Options: Air Quality

- **Public Sector Jobs**
  - Research jobs
  - Government jobs

- **Private Sector Jobs**
  - Industry jobs
  - Consulting jobs
Research Jobs

- Typically require a graduate degree
- Government entities such as NASA, NOAA, Department of Energy, national laboratories
- Universities
  - Smaller, teaching-based programs
  - Larger, research-based programs
Research Jobs

➢ Pros
  ✓ Interesting projects
  ✓ Highly-skilled colleagues

➢ Cons
  ✗ Extremely demanding
  ✗ Difficult to secure a position
Government Jobs

- Local regulatory agencies (city, county)
- State-level agency (Texas Commission on Environmental Quality)
  - Regional offices
  - Austin Headquarters
- Environmental Protection Agency
Government Jobs

➤ Pros
✓ Job security
✓ Good benefits (insurance, holidays, no OT)
✓ Advancement/pay highly structured

➤ Cons
× Advancement/pay highly structured
× Salaries not extremely competitive
Industry Jobs

- Private sector companies
- Go-to person for all environmental issues
- Often tied in with Health, Safety, and/or Security
Industry Jobs

➢ Pros
  ✓ Salaries competitive
  ✓ Corporate financial support

➢ Cons
  × Required to wear many hats
  × Can be replaced
Environmental Consulting

- Industry Support
  - Permitting (applications, modeling)
  - Compliance (recordkeeping, reporting)

- Forensic Meteorology
Environmental Consulting

➢ Pros
  ✓ Dynamic work environment
  ✓ Competitive salaries
  ✓ Ability to control one’s own destiny

➢ Cons
  × Nowhere to hide
  × Streaky work schedule
Climate

➢ Greenhouse gases and their role in global warming

➢ Atmospheric aerosols
  ▪ Direct effect (light scattering)
  ▪ Indirect effect (cloud number and albedo)
Nonattainment

- Ozone Nonattainment (VOCs and NO\textsubscript{x})
  - Houston, DFW, and Beaumont
- Near nonattainment (VOCs and NO\textsubscript{x})
  - San Antonio, Austin, Corpus Christi, Victoria, Tyler/Longview
- Review of State Implementation Plan
- Better Understanding of Chemistry
Emission Inventories

- Emission inventories are inaccurate
  - Observations at monitoring sites greater than the modeling of current inventories
- All sources must be quantified
  - Better measurement techniques (HAWK, GasFindIR)
  - Implementation of emission controls
- Evaluation of TCEQ Watch List Areas
- Large sources of GHGs must report
Summary

- Air quality, like the atmosphere, is a very dynamic field
- Many very different opportunities exist
- Search for a job that fits you
  - Can you meet your career objectives?
  - Do the positives outweigh the negatives?
  - Is this the job that you really want?
  - Are you on-track right now?
Don’t drink and drive!

Thanks and Gig ‘em!