



Five-Year Meteorological Database for the OCD and CALPUFF Models

Presented at the 24th Information Transfer Meeting
OCS Region of the Minerals Management Service

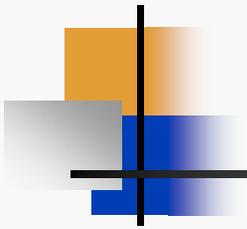
9 January 2007

Kenner, Louisiana

**Presented by Sharon Douglas
ICF International, San Rafael, CA**

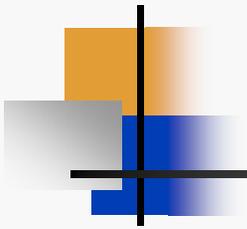
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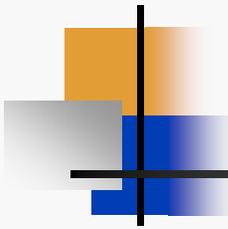
Presentation Outline

- Background & Objectives
- Project Overview
- Dataset Contents
- Summary Characteristics for the 5-Year Period
- Expected Uses of the Dataset
- Schedule



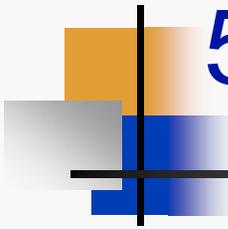
Background

- Prior air quality dispersion modeling studies of the Gulf of Mexico have used a two-year meteorological dataset for 1991-1993 and this is now somewhat outdated
- MMS recently sponsored the development of the next generation air quality models for application to the OCS region and this included
 - preparation of a updated meteorological dataset for 2003
 - identification of CALMET/CALPUFF and OCD5 as possible future dispersion modeling techniques



Objective

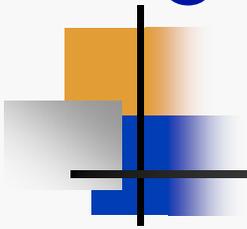
- Prepare a five-year meteorological dataset for the GOM OCS region that will
 - represent more recent baseline periods
 - include data from current onshore and offshore data sources
 - support air quality modeling applications for a variety of environmental assessments



5-Year Dataset Considerations

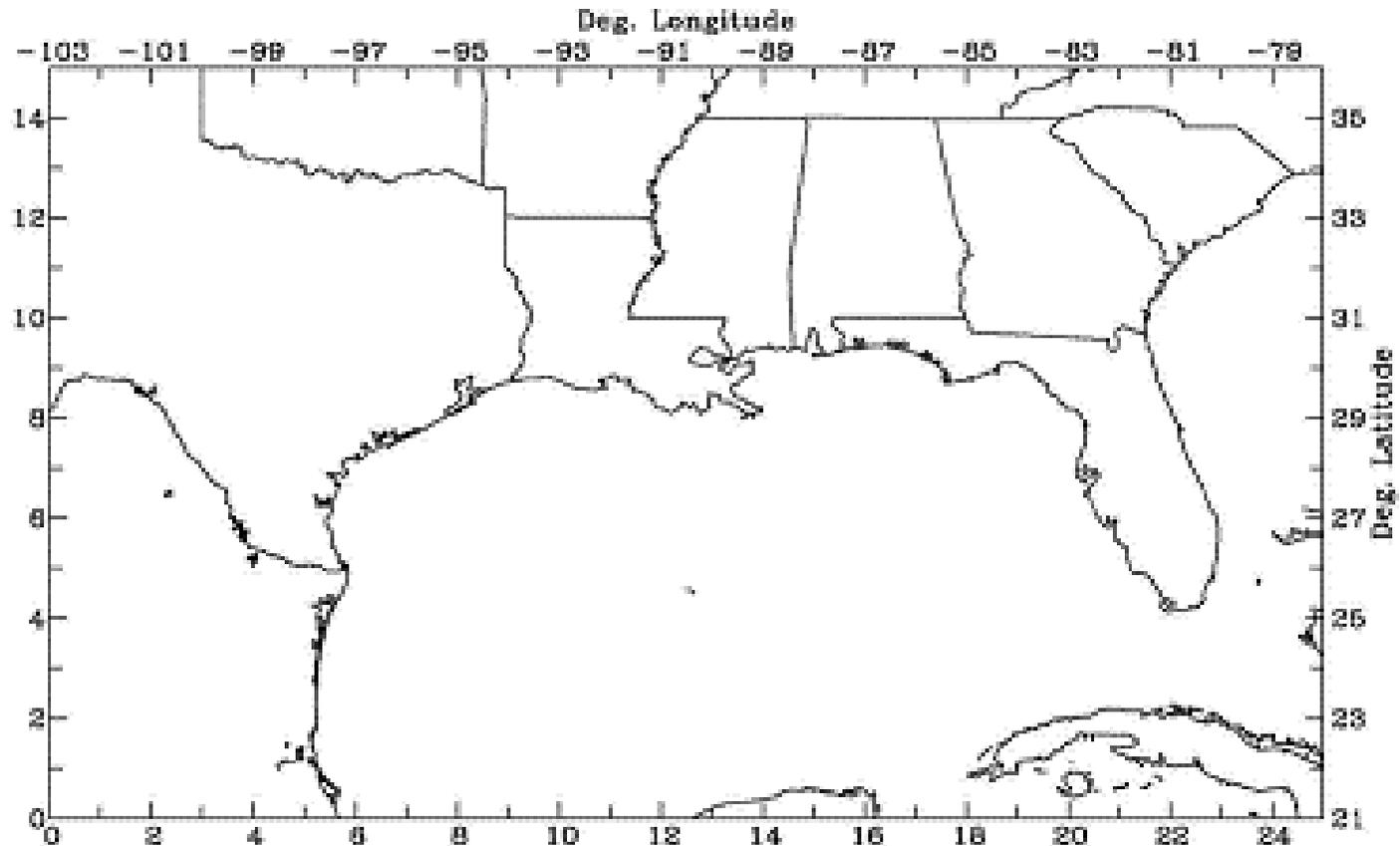
- Compatibility with prior dataset for 2003
- Avoid unusual meteorological conditions associated with GOM hurricane activity during 2005
- Suitability for use with CALMET/ CALPUFF and OCD modeling systems
- Quality assurance of data (and model output files) from a variety sources

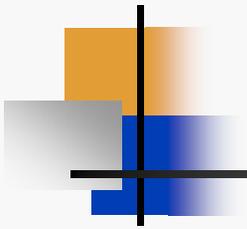
5-Year Dataset Period & Domain



- **Period:** 2000–2004 (avoids hurricane activity during 2005)
- **Domain:** GOM region and portions of surrounding states (“standard MMS dataset” domain)

5-Year Dataset Domain

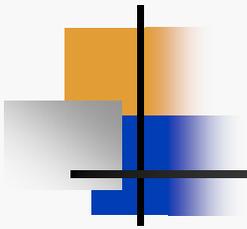




5-Year Dataset Contents

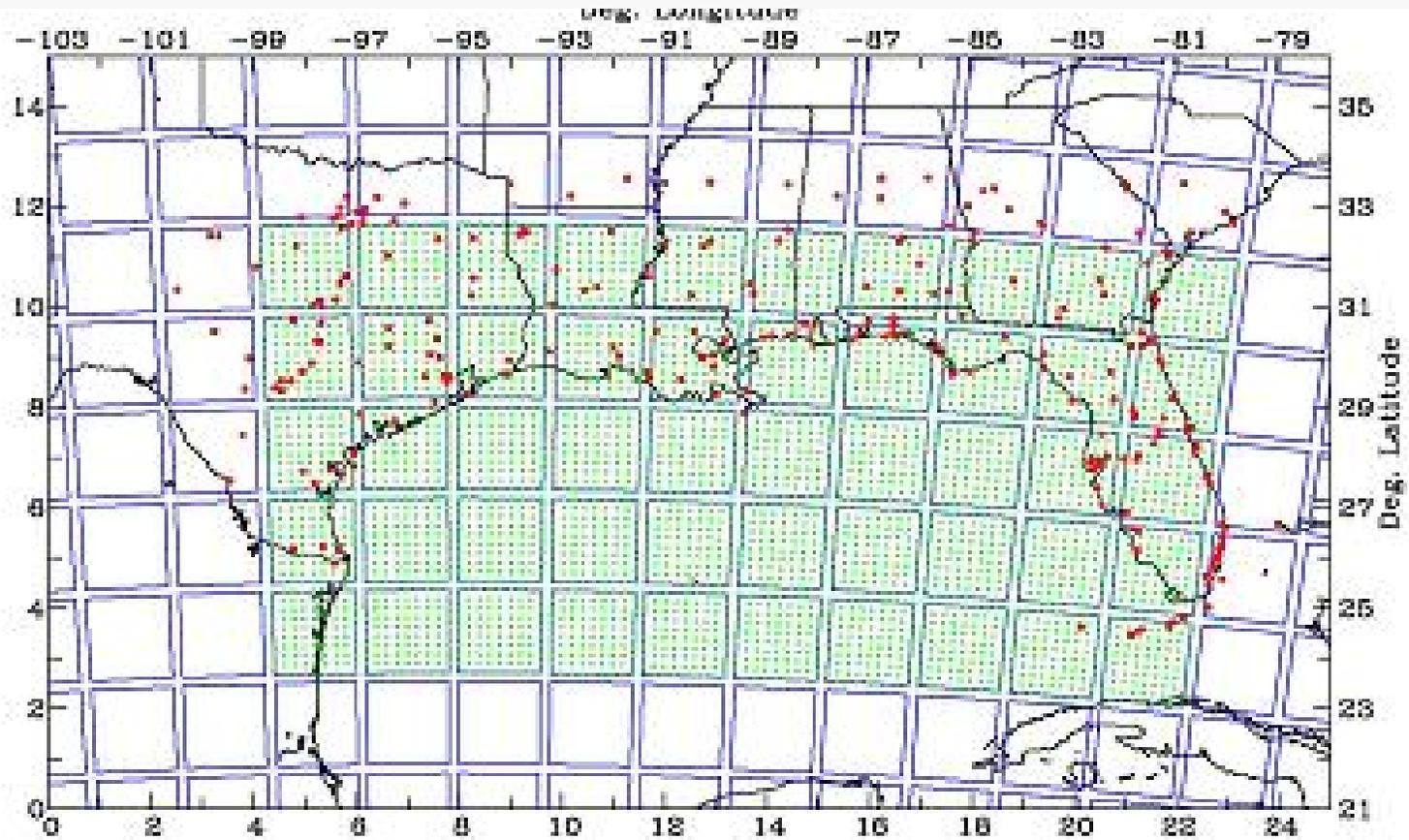
- Model output from the Rapid Update Cycle (RUC) prognostic model – formatted as 50 tiles covering the GOM and onshore areas
- National Weather Service (NWS) surface meteorological data (230 stations in the GOM region)
- NWS upper-air meteorological data (21 stations in the GOM region)
- NDBC buoy data (~13 stations)

5-Year Dataset Contents (concluded)

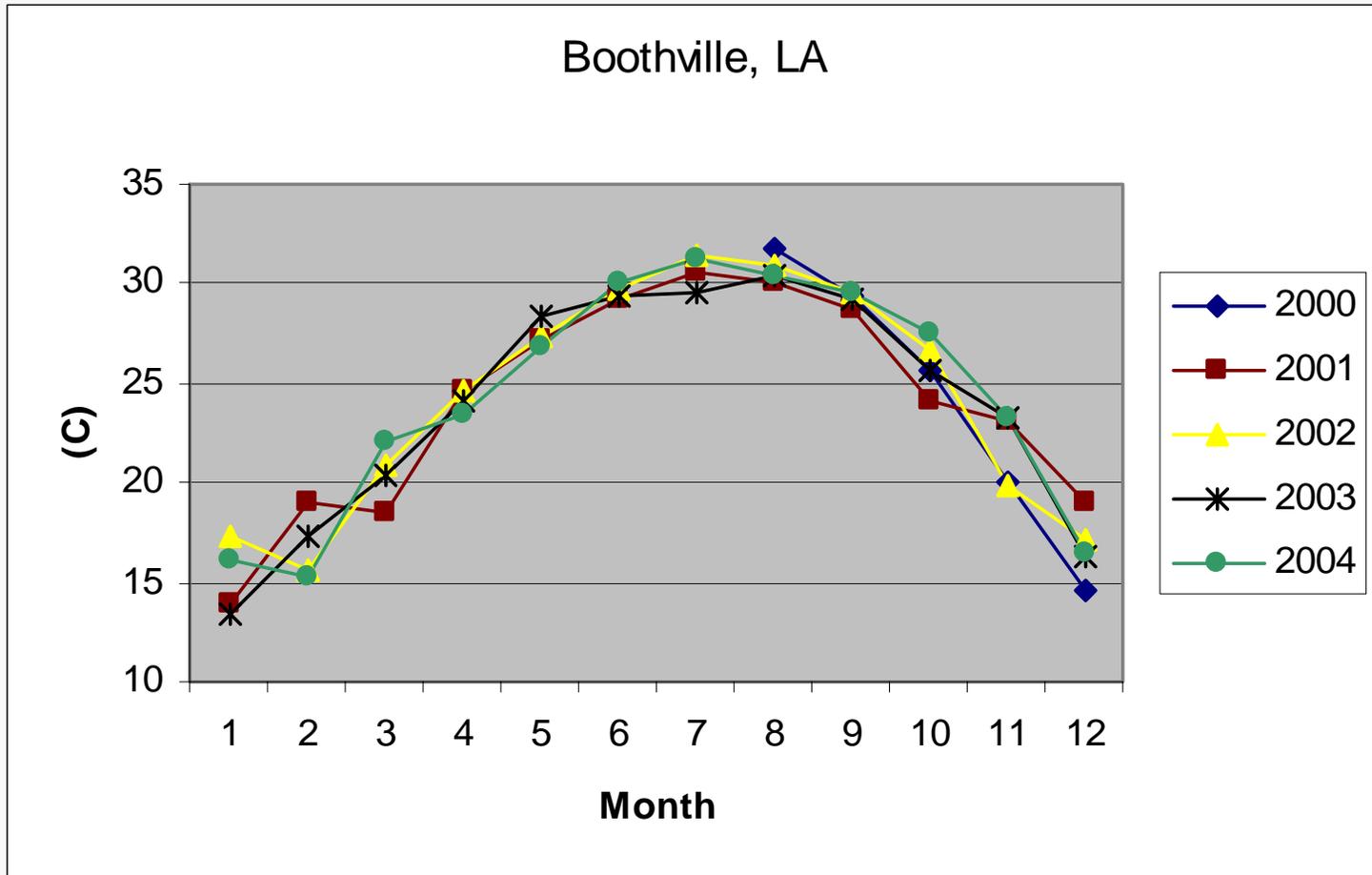


- NWS precipitation data (~270 stations in the GOM region)
- AIRS/AQS ozone data (~200 monitoring sites)

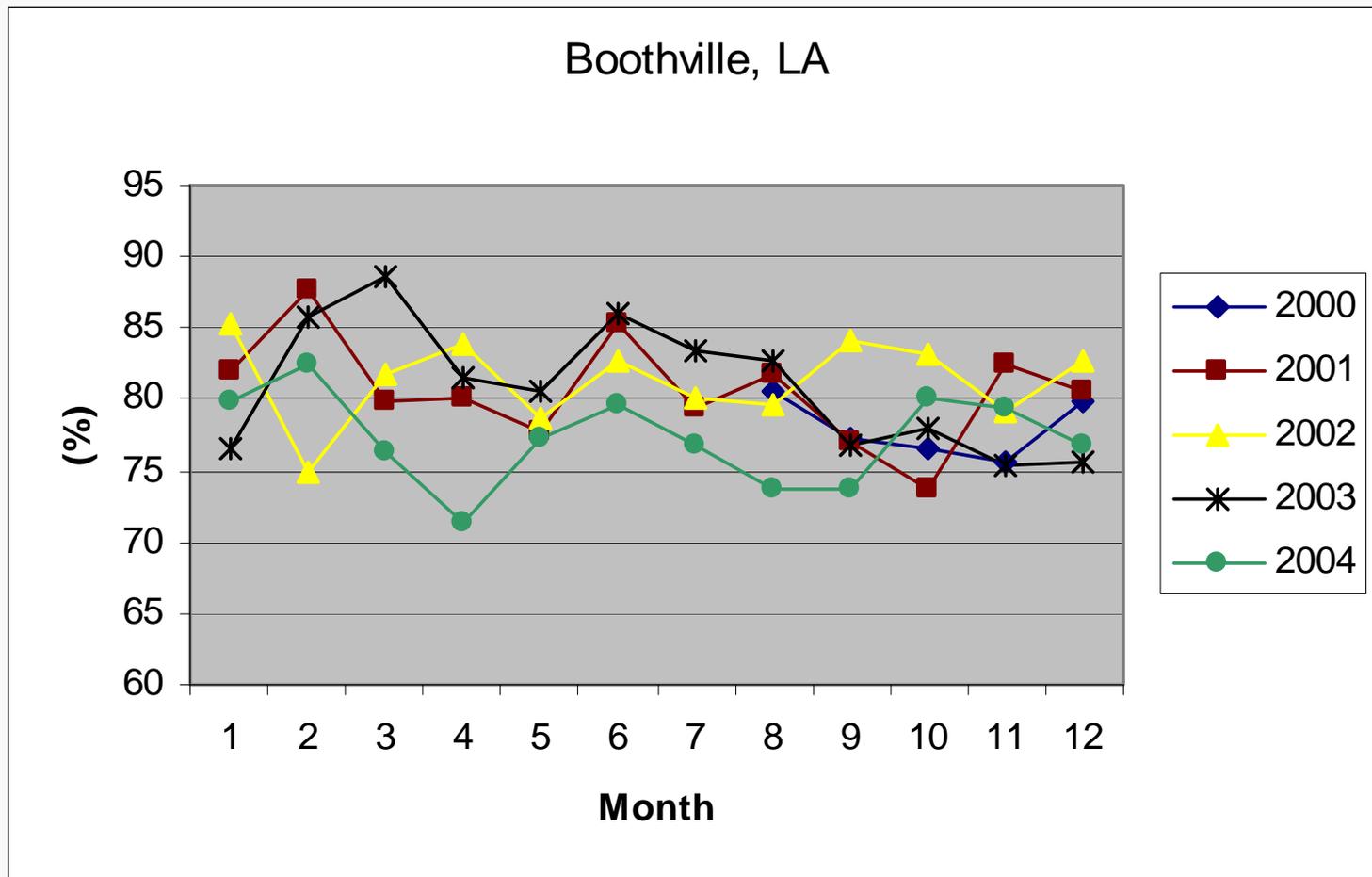
5-Year Dataset Domain w/RUC Tiles & NWS Surface Stations



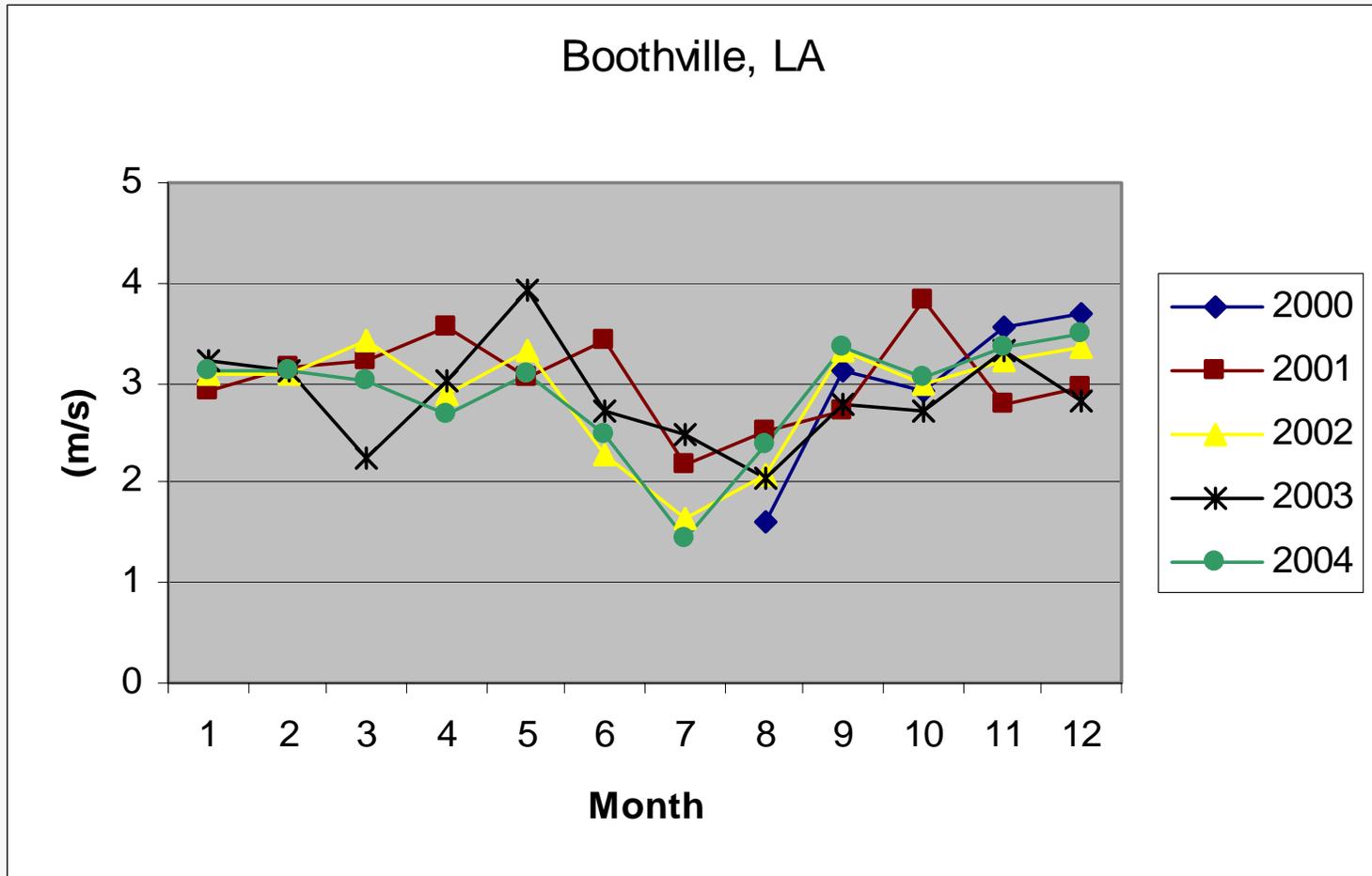
Preview of Characteristics of the 5-Year Dataset: Monthly Avg T



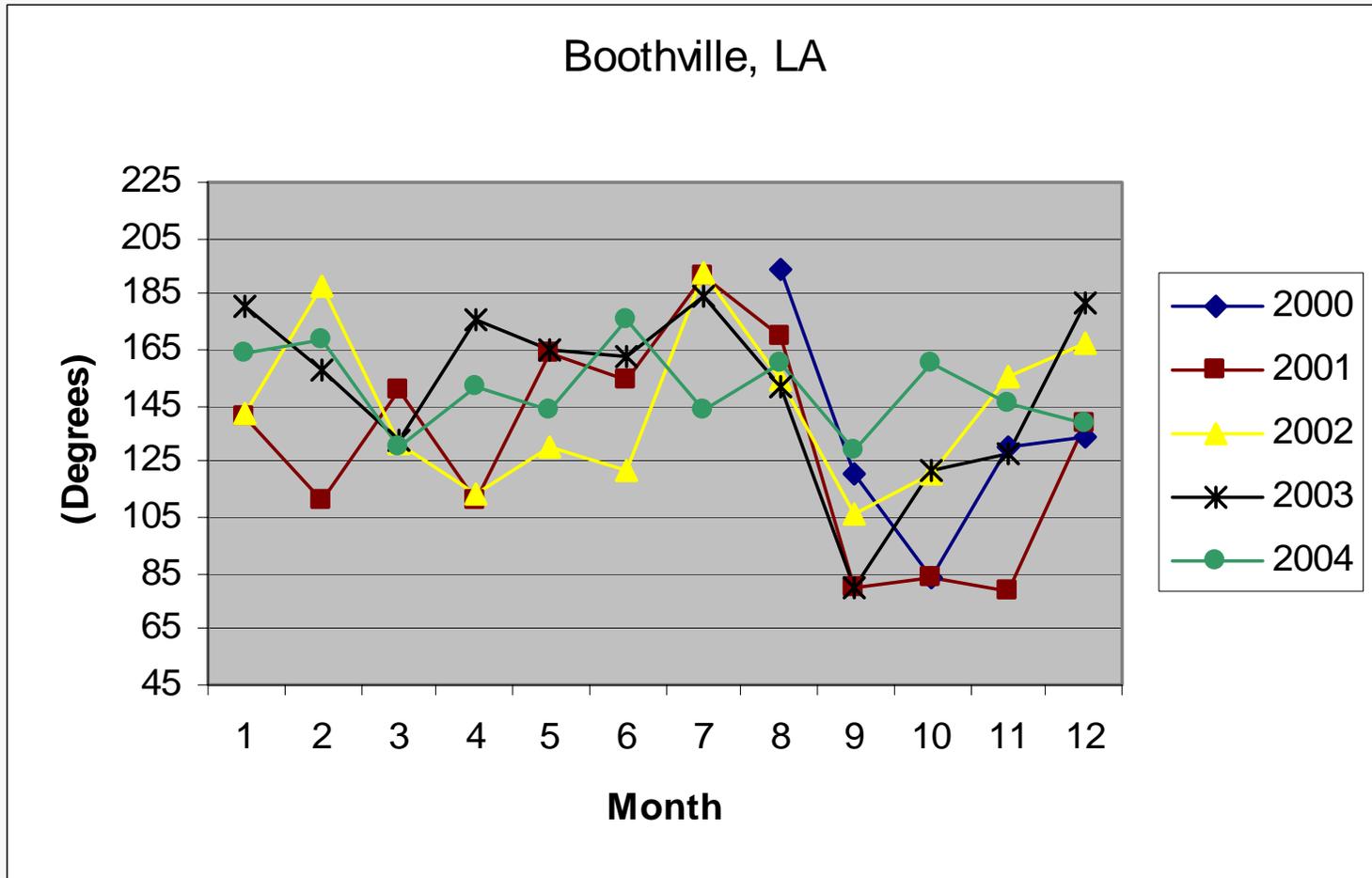
Preview of Characteristics of the 5-Year Dataset: Monthly Avg RH



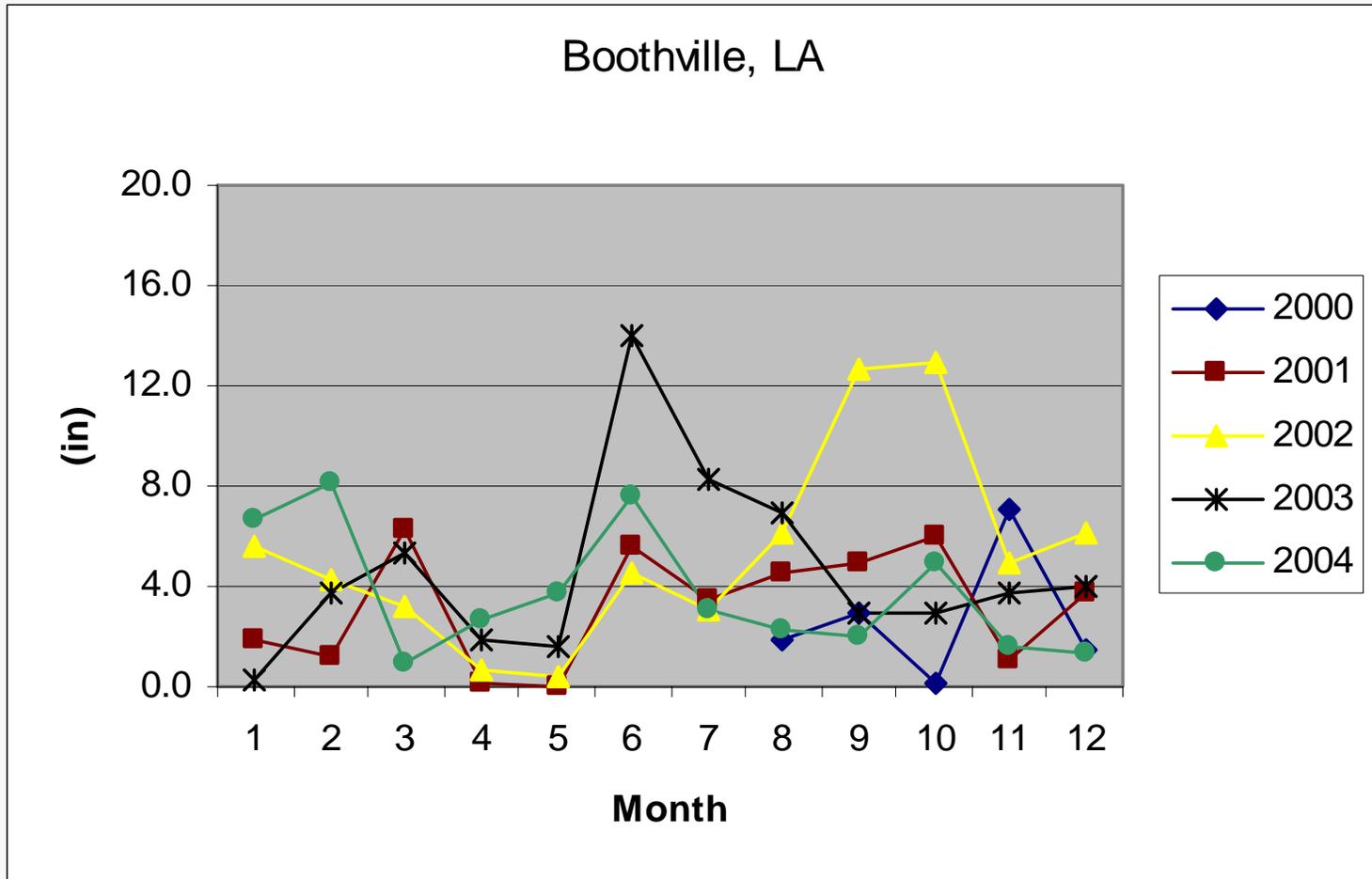
Preview of Characteristics of the 5-Year Dataset: Monthly Avg WS



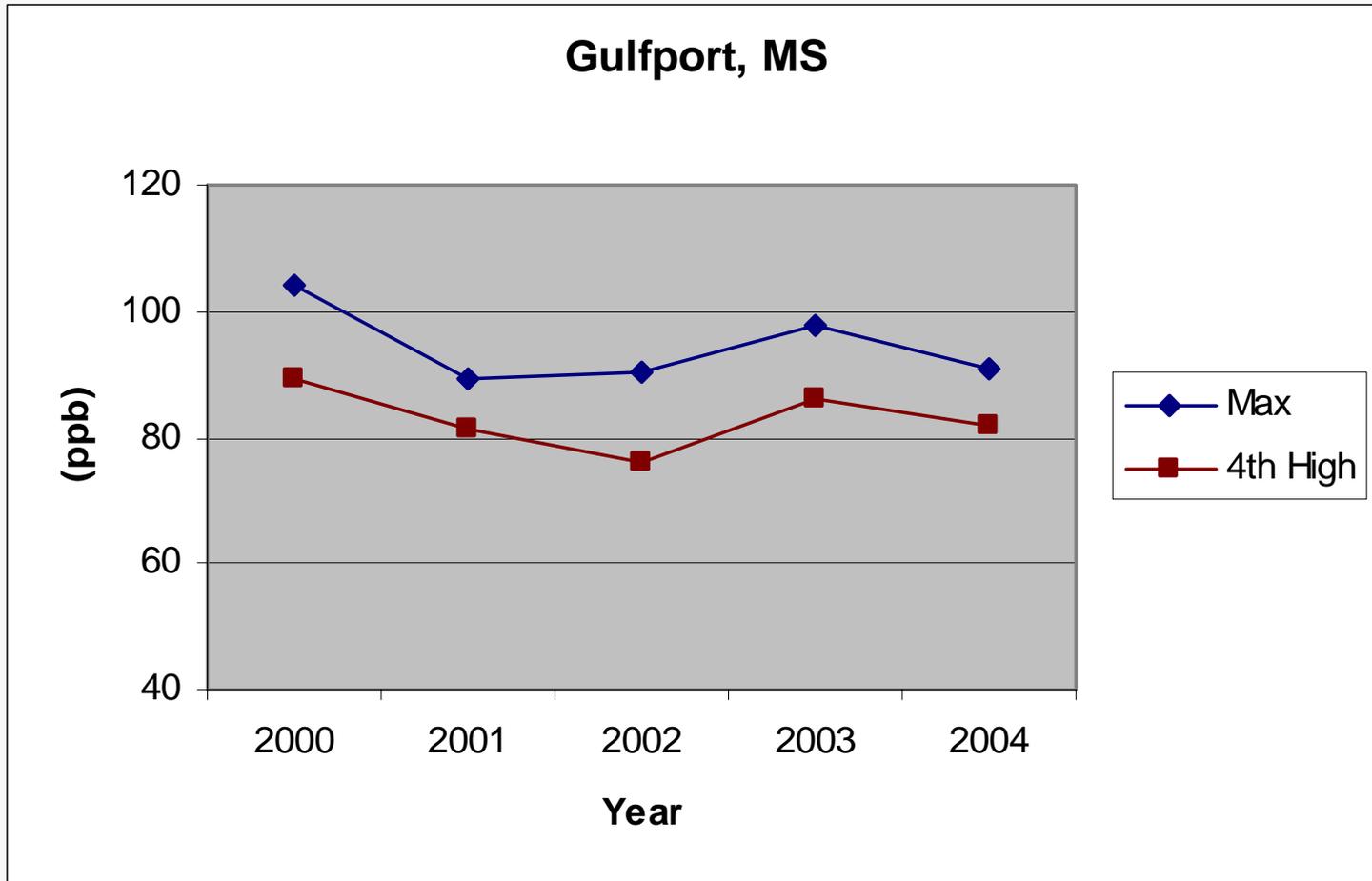
Preview of Characteristics of the 5-Year Dataset: Monthly Avg WD

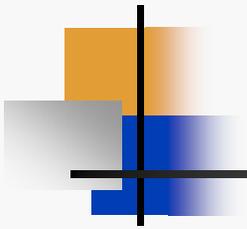


Preview of Characteristics of the 5-Year Dataset: Monthly Precip



Preview of Characteristics of the 5-Year Dataset: 8-Hr Ozone (4th High)





Use of the 5-Year Meteorological Dataset

- Separate files will be prepared for input to CALMET/CALPUFF and the Offshore Coastal Dispersion Model (OCD5)
- It is expected that the dataset will be used to support
 - dispersion modeling of existing and new OCS sources
 - analysis of 8-hour ozone data and evaluation of 8-hour ozone modeling results

