



SOUTH AMERICAN LOW-LEVEL JET EXPERIMENT

Data Workshop

SALLJEX data Workshop

Objectives



- To assess what progress have been made on SALLJEX objectives.
- To strength and arrange collaborations among the participants in SALLJEX.
- To broaden participation in order to expand the analysis and modeling use of SALLJEX data by other scientists and their students
- To determine follow-up SALLJEX activities



VAMOS/SALLJ PROGRAM

GOAL

To understand the role of the South American low-level jet in moisture and energy exchange between the tropics and extratropics and related aspects of regional hydrology, climate and climate variability

VAMOS/SALLJEXperiment



Participant countries: Argentina, Bolivia, Brazil, Chile, Estados Unidos, Paraguay, Perú

Main participant institutions (in alphabetic order): AASANA - Bolivia, CIMA - Argentina, CPTEC - INPE - Brasil, DINAC - DNM - Paraguay, NCAR - JOSS - USA, NSF(ATM) - USA, NSF(IAI/GEO) - USA, NOAA (PACS/OGP)- USA, NOAA(NSSL/ERL), SENAMHI - Perú, Servicio Meteorológico Nacional - Argentina, Universidad of Buenos Aires - Argentina, University of Chile - Chile, University of São Paulo - Brasil, University of Utah - USA

SALLJEX Project office: G. Emanuel, J. Meitin (UCAR/JOSS), C. Ereño (ICPO)

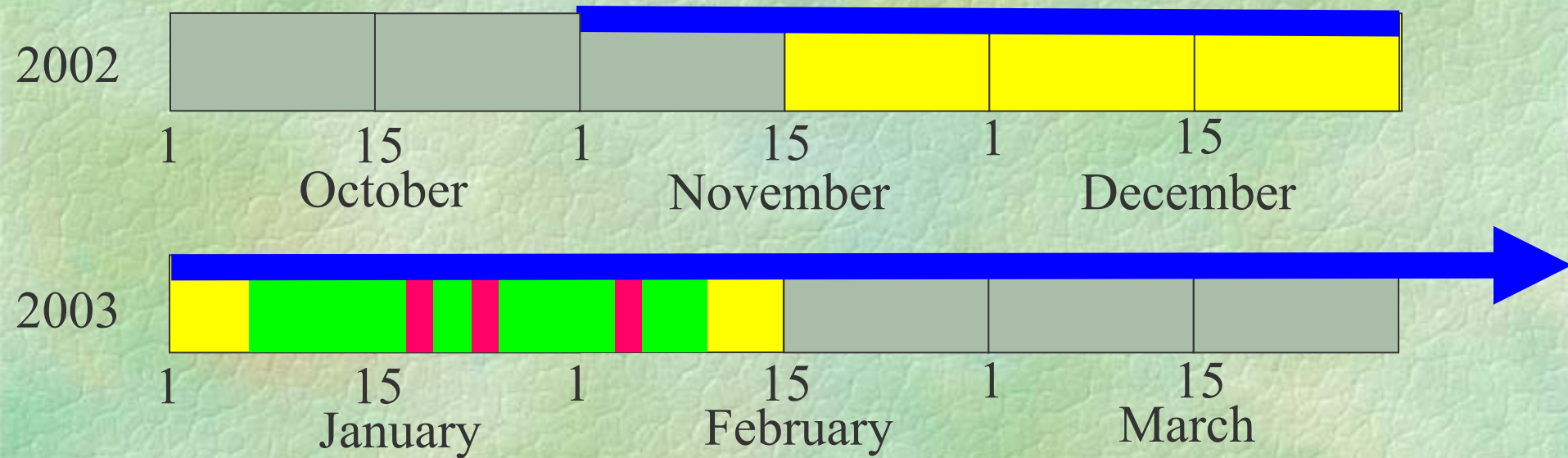
Main funding sources: NOAA/OGP and NSF (USA), FAPESP (Brazil), ANPCyT (Argentina)

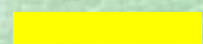
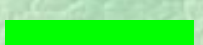
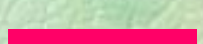



SALLJEX Components

- **Upper-air network enhancement**
- **NOAA/P-3 Missions**
- **Daily precipitation network enhancement**
- **Modeling**

SALLJEX Timeline



-  Basic observing period (Upper-air obs)
-  Special Observing Period (Upper-air obs & P-3 Missions)
-  Intensive Observing Periods (Upper-air obs)
-  SALLJEX raingauge observating system

SALLJEX Upper-air network



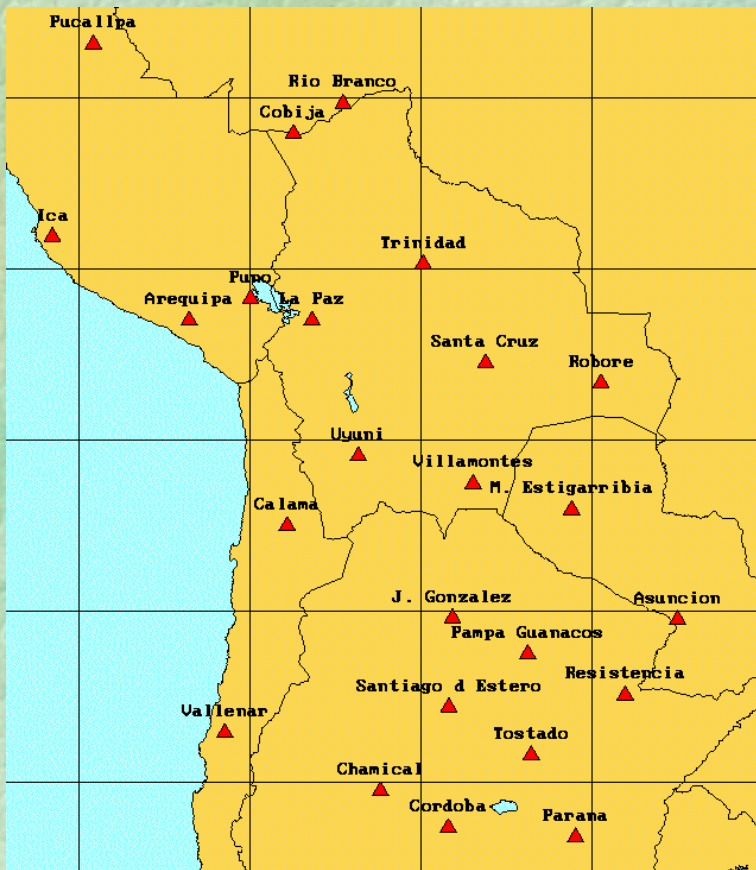
- Quantification of the SALLJ intensity on a daily basis.
- Diurnal variations of the SALLJ
- Structure of the Chaco heat low

Principal investigators: M. Douglas (NOAA/NSSL), J. Noguez-Paegle (Univ. of Utah), J. Paegle (Univ. of Utah), M. Nicolini (Univ. of Buenos Aires), J. Marengo (CPTEC), C. Saulo (Univ. of Buenos Aires)

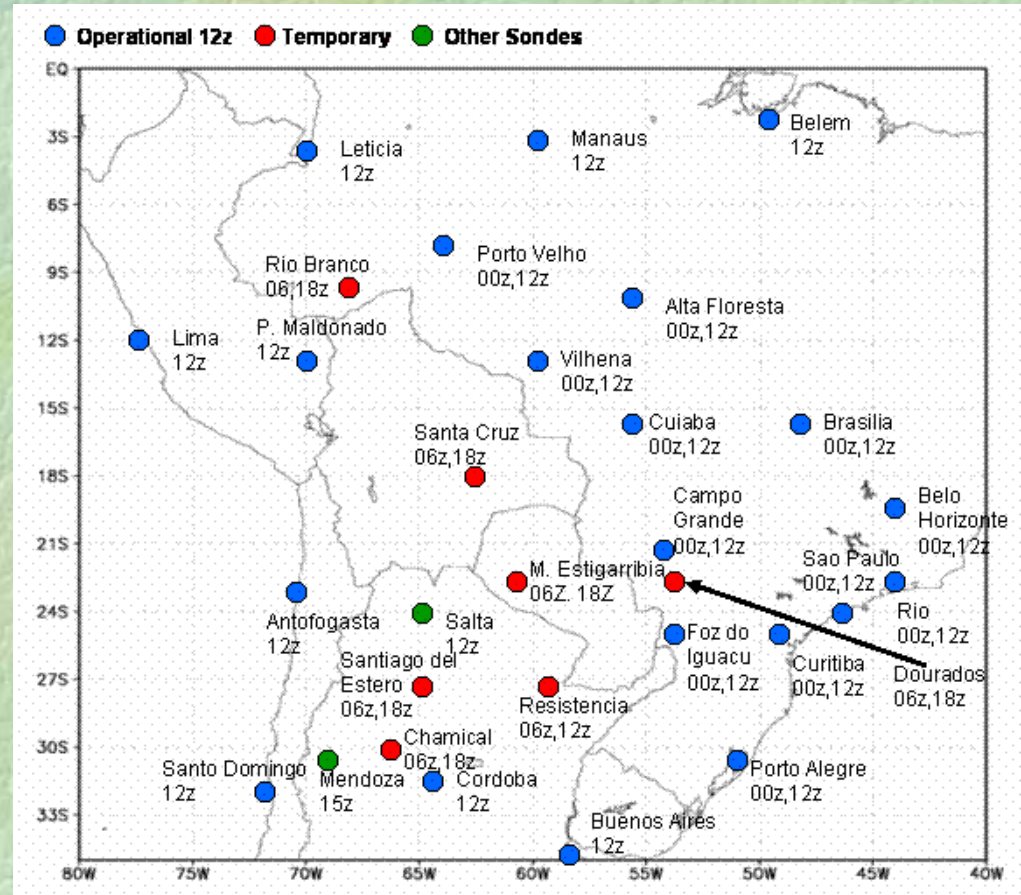


SALLJEX Upper-air network

PIBALS



RADIOSONDES



NOAA/P-3 Missions in SALLJEX



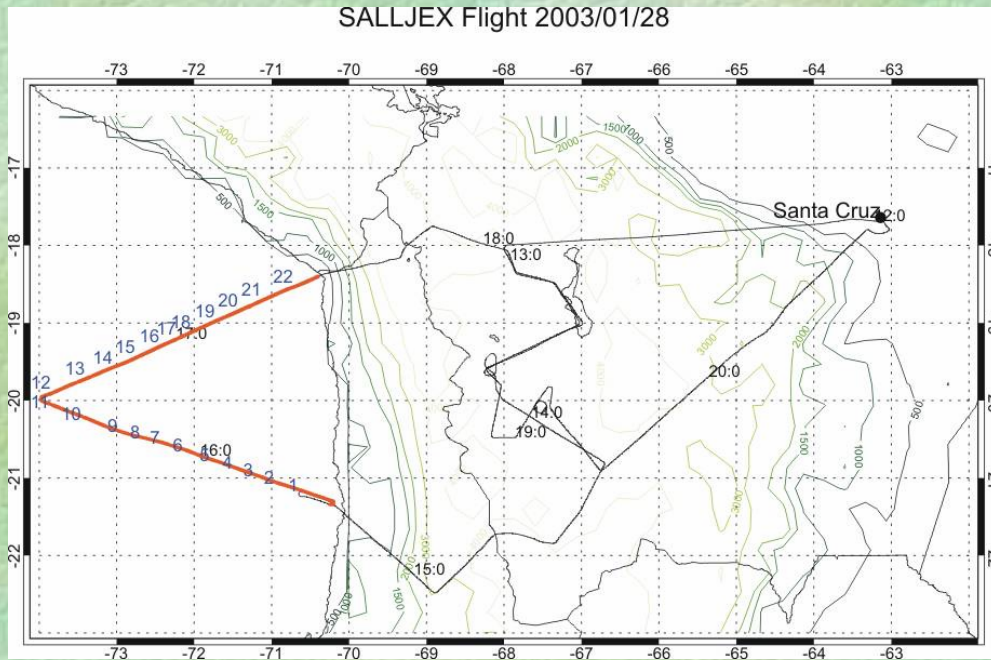
- Detailed description of the 3-dimensional structure of the SALLJ
 - The relationship between MCS and the SALLJ
 - Structure of cold frontal surges near the eastern slopes of the Andes
 - Description of mesoscale winds and moisture variability over the Altiplano
 - Description of the heat low over the Chaco and NW Argentina

Principal investigators: M. Douglas (NOAA/NSSL), E. Zipser (Univ. of Utah), M. Nicolini (Univ. of Buenos Aires)

NOAA/P-3 Missions in SALLJEX



Around 120 hours were available for SALLJEX during the period between 15 January and 8 February 2003.





SALLJEX daily precipitation network

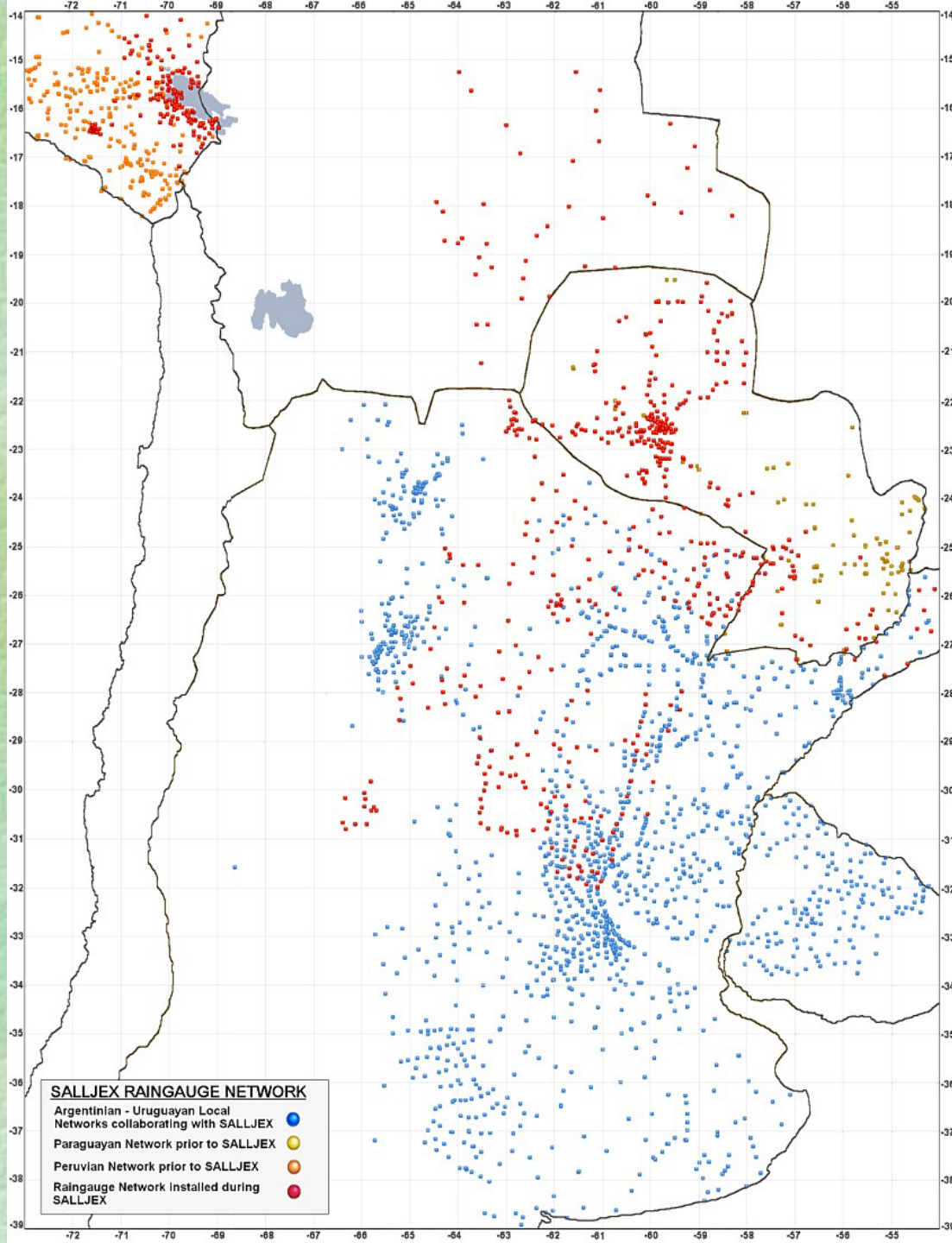
Determination of wet and dry periods during the experiment and their relationship with SALLJ events

- Providing ground truth estimates for comparison with a hierarchy of numerical simulations of rainfall in the region.
- Determining the accuracy of satellite-rainfall estimates over the region.

Principal investigators: M. Douglas (NOAA/NSSL), G. Miranda (University Mayor of San Andres, Bolivia), Julian Baez (DINAC, Paraguay), Brant Liebmann (CIRES, Univ. of Colorado), C. Vera (Univ. of Buenos Aires, Argentina).



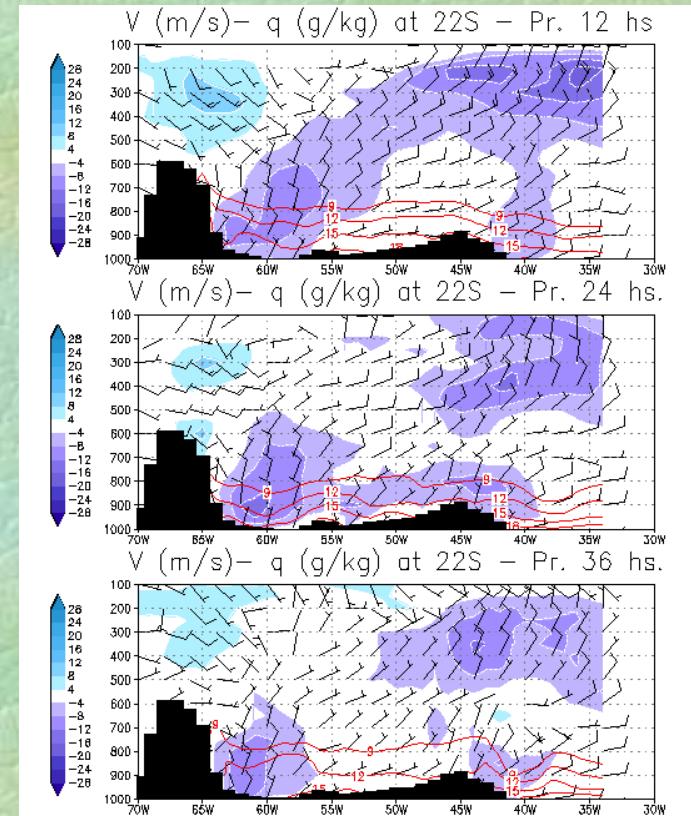
SALLJEX DAILY PRECIPITATION NETWORK by Apr 2003



SALLJEX Modeling activities



- To evaluate the veracity of numerical representation (forecasts and analyses) of SALLJ against special observations and,
- To determine improvements of initial state representation and model parameterizations required to improve prediction.



Special numerical weather products derived by models from the following institutions: CPTEC and Univ. of São Paulo (Brazil), CIMA and UBA (Argentina), Univ. of Maryland and Univ. of Utah (USA), Univ. Of Chile (Chile)

SALLJEX data Workshop



Plenary sessions

- To what extent SALLJEX is meeting its goals?
- Were the SALLJ features accurately enough measured to make progress in the knowledge of them?
- Do we need additional and/or complementary datasets to address this issue?
- Can the new insights be used to improve process descriptions in numerical models?
- How scientific collaborations can be strengthened and expanded?

SALLJEX data Workshop



Plenary sessions

- Chairs and rapporteurs have a very important role in leading and moderating plenary sessions discussion!
- Written presentation summaries: speakers
- Plenary session summary reports: Chairs and rapporteurs
- **DEADLINE: 12 January 2004**

SALLJEX data Workshop



•FRIDAY plenary sessions:

•Theme 4 plenary session: SALLJ related topics. Where do we go from SALLJEX?

•Last plenary session:

- New datasets for the SALLJEX database? “Shopping list”
- CLIVAR Exchanges issue (deadline 31 Jan 2004)
- CLIVAR Science Conference (deadline 15 Dec 2003)

SALLJEX data Workshop



Final Plenary session

- Were the SALLJ features accurately enough measured to make progress in their knowledge?
- Do we need additional and/or complementary datasets to address this issue?

To what extent SALLJEX is meeting the goals of the Program?

How scientific collaborations can be strengthened and expanded?

- **Detailed description of the 3-dimensional structure of the SALLJ and its variability on different time scales**
- **Diurnal variation of the SALLJ**
- **Characterization of the Chaco heat low**
- **MCS activity and its relationship with the SALLJ**
- **Structure of cold frontal surges near the eastern slopes of the Andes**
- **Description of mesoscale winds and moisture variability over the Altiplano**
- **Determination of wet and dry periods during the experiment and their relationship with SALLJ events**
- **Providing ground truth estimates for comparison with a hierarchy of numerical simulations of rainfall in the region.**
- **Determining the accuracy of satellite-rainfall estimates over the region.**

Can the new insights be used to improve process descriptions in numerical models?

- **Evaluation of the veracity of numerical representation (forecasts and analyses) of SALLJ against special observations.**
- **Impact of SALLJEX data on data assimilation systems.**
- **Improvements of initial state representation and model parameterizations.**

CLIVAR Exchanges

- **Editorial: SALLJEX in the context of VAMOS/WCRP. Mechoso and Carson**
- **Introduction. SALLJEX goals and components. Author: C. Vera**
- **Overview of SALLJ Field Campaign. Authors: G. Emanuel, J. Meitin, S. Williams**
- **SALLJ 3-dim structure and diurnal cycle: Nicolini, Douglas, Zipser,...**
- **Variability of the SALLJ in various time and spatial scales. Authors: Marengo, Vera, Liebmann, N. Paegle, J. Baez ...**
- **Characterization of Chaco heat low and its relationship with SALLJ. Authors: Saulo, Seluchi,...**
- **MCS activity during SALLJEX. Authors: Zipser, Salio, Nicolini,...**
- **Moisture and rainfall variability over the Altiplano. Authors: Garreaud,...**
- **Evaluation and sensitivity studies of SALLJ numerical simulations. Authors: J. Paegle, C. Saulo, H. Berbery,...**
- **Ideas for modeling improvement in the region. Authors: Silva Dias, Mapes, Donner, Raga...**
- **Data impact on Assimilation. Authors: Cavalcanti, Herdies, Kalnay, Kousky,...**

SALLJEX data Workshop



- Written presentation summaries: speakers
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- DEADLINE: **12 January 2004**