## GEOFLOW - Experimental status

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GeoFlow Topical Team Meeting 25.01.2008, Brandenburg University of Technology Cottbus

> German Aerospace Center e.V. (DLR), FKZ 50 WM 0122, European Space Agency (ESA), grant number AO99-049,

ESA Topical Team, grant number 18950/05/NL/VJ



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#### Outline

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#### Experiment set up

Experiment flow plan Status of GEOFLOW Data Transfer Summary and Outlook

Fluid Cell Assembly and Free Experiment Parameters Experiment Parameters

#### Experiment Cell



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Rotation Rate High Voltage Temperature Diff.	Ω [Hz] V <sub>rms</sub> [kV] ΔT [K]	${\leq 2} = 10 \\ {\leq 10}$		$Ta \leq 1.3  imes 10^7$ $Ra_{central} \leq 1.4  imes 10^5$
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#### Geometric Parameters of Research Cavity

Inner Radius	r <sub>i</sub>	[mm]	13.5	)	$\eta = r_i/r_o = 0.5$
Outer Radius	ro	[ <i>mm</i> ]	27.0	Ĵ	$\beta = (r_i - r_o)/r_i = 1$
Gap Width	$r_i - r_o$	[ <i>mm</i> ]	13.5	,	, , , ,

### Physical Properties of Working Fluid (Silicone Oil)

Density	$\left[g/\mathrm{cm}^3\right]$	0.92		
Kinematic Viscosity	$[m^2/s]$	$5 imes 10^{-6}$	)	D (1
Thermal Diffusivity	$[m^2/s]$	$7.735 imes10^{-8}$	Ì	$Pr \approx 64$
Thermal Conductivity	$[W/(K \times m)]$	0.116	-	
Cubic Exp. Coeff.	[1/K]	$108 imes10^{-5}$		
Dielectric Constant	$\epsilon_r$	2.7		
Thermal Coeff. of $\epsilon_r$	[1/K]	$1.07 imes10^{-3}$		

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Variation of Rotation and Temperature Difference Variation of Rayleigh- and Taylor-Number

#### High Resolution Parameter Scan



Variation of Rotation and Temperature Difference Variation of Rayleigh- and Taylor-Number

#### High Resolution Parameter Scan



Status of Experiment Hardware Preparation

#### Experiment Hardware

- EC integrated in FSL
- FSL integrated in Columbus
- Columbus loaded in Space Shuttle
- Launch: sheduled to February 7th, 2008, 20:47 (MEZ) with NASA Space Shuttle 'Atlantis'



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Data Transfer between BTU and FSL Data Flow at BTU



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Data Transfer between BTU and FSL Data Flow at BTU



#### Summary

• well prepared for data flow, storage and analysis

### Outlook

- familarization with experiment hardware
- familarization of the image proccessing with all available optical modes

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# Thank you for your Attention!

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