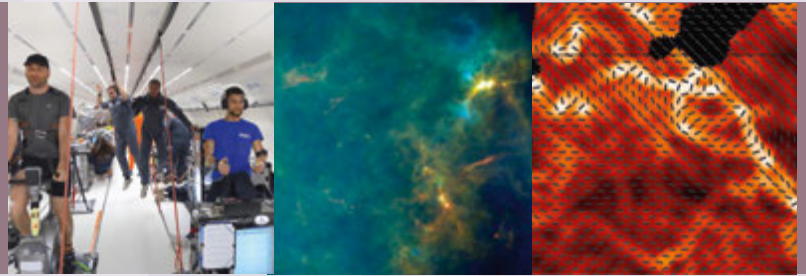




# CONTENTS



EDITORIAL

6



## UNIVERSE SCIENCES & MICROGRAVITY

8-11

### ASTROPHYSICS

12

- PLANCK and HERSCHEL on the track of proto-clusters 14
- PLANCK takes a look at our Galaxy's magnetism 16
- PLANCK and BICEP2/Keck collaboration: an upper limit on the intensity of primordial gravitational waves 18

### FUNDAMENTAL PHYSICS

20

- ICE measures the local differential acceleration between two atomic species 22

### SOLAR SYSTEM

24

- The ROSETTA/PHILAE mission (ESA) 28
- The Mars Science Laboratory mission (NASA) 30
- The CASSINI/HUYGENS mission (NSA-ESA) 32

### EXO BIOLOGY

34

- EXOMARS: looking for a proof of concept 36
- EXPOSE-R: chemistry under the sunlight 38

### SUN - HELIOSPHERE - MAGNETOSPHERES

40

- First results of the Magnetospheric MultiScale mission (MMS) 42
- CDPP & MEDOC data centers 44

### CONDENSED-MATTER PHYSICS

46

- Oscillatory pattern formation in alloy solidification 48
- Universal behavior of critical and supercritical fluids 50

### LIFE SCIENCES

52

- Muscle atrophy mechanisms: a case study of hibernating brown bears 54
- Gravity changes and immune cell development 56



## EARTH – ENVIRONMENT – CLIMATE

58-61

### SOLID EARTH 62

- SWARM: Monitoring Earth's Magnetic Field 66
- From SPOT to PLEIADES: continuously observing the Earth 68

### OCEANOGRAPHY 70

- Sea level rise monitoring 74

### CONTINENTAL SURFACES 76

- Contribution of space measurements in the description and monitoring of the water cycle 78
- Above-ground biomass mapping in French Guiana using remote sensing and environmental data 80
- Tele-epidemiology: a study of the climate - environment - health relationships 82

### ATMOSPHERE 84

- Contribution of the CALIPSO mission to better quantification of the role of clouds and aerosols in Earth's radiation budget 88
- IASI mission helping to study climate and atmospheric pollution 90