SPOLEČNĚ DO STRATOSFÉRY

PŘEDPOKLÁDANÉ TECHNOLOGICKÉ STARTY STRATOSFÉRICKÉHO BALONU

RENÉ KIZEK, LABORATOŘ METALOMIKY A NANOTECHNOLOGIÍ

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Laboratory of Metallomics and Nanotechnologies
CEITEC
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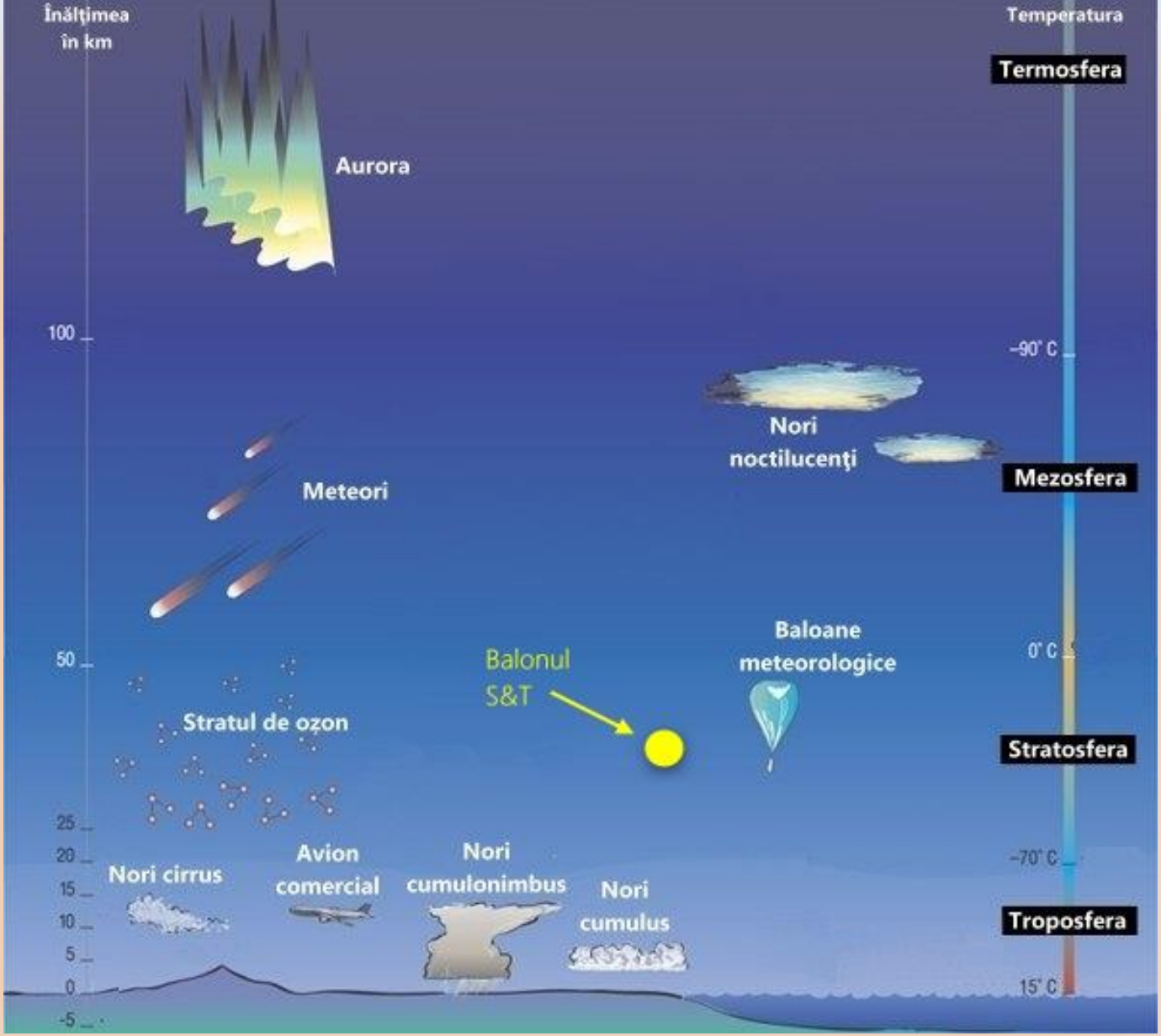

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Senzor pro monitorování záření

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Možnosti sledování bakterií a virů ve stratosféře

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How do microorganisms reach the stratosphere?

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Abstract: A number of studies have demonstrated that bacteria and fungi are present in the stratosphere. Since the tropopause is generally regarded as a barrier to the upward movement of particles it is difficult to see how such microorganisms can reach heights above 17 km. Volcanoes provide an obvious means by which this could be achieved, but these occur infrequently and any microorganisms entering the stratosphere from this source will rapidly fall out of the stratosphere. Here, we suggest mechanisms by which microorganisms might reach the stratosphere on a more regular basis; such mechanisms are, however, likely only to explain how micrometre to submicrometre particles could be elevated into the stratosphere. Intriguingly, clumps of bacteria of size in excess of 10 μm have been found in stratospheric samples. It is difficult to understand how such clumps could be ejected from the Earth to this height, suggesting that such bacterial masses may be incoming to Earth. We suggest that the stratospheric microflora is made up of two components: (a) a mixed population of bacteria and

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In all, 12 bacterial and six fungal colonies were detected, nine of which, based on 16S RNA gene sequence, showed greater than 98% similarity with reported known species on Earth. Three bacterial colonies, namely, PVAS-1, B3 W22 and B8 W22 were, however, totally new species. All the three newly identified species had significantly higher UV resistance compared to their nearest phylogenetic neighbours. Of the above, PVAS-1, identified as a member of the genus *Janibacter*, has been named *Janibacter hoylei. sp. nov*. The second new species B3 W22 was named as *Bacillus isronensis sp.nov.* and the third new species B8 W22 as *Bacillus aryabhata*.

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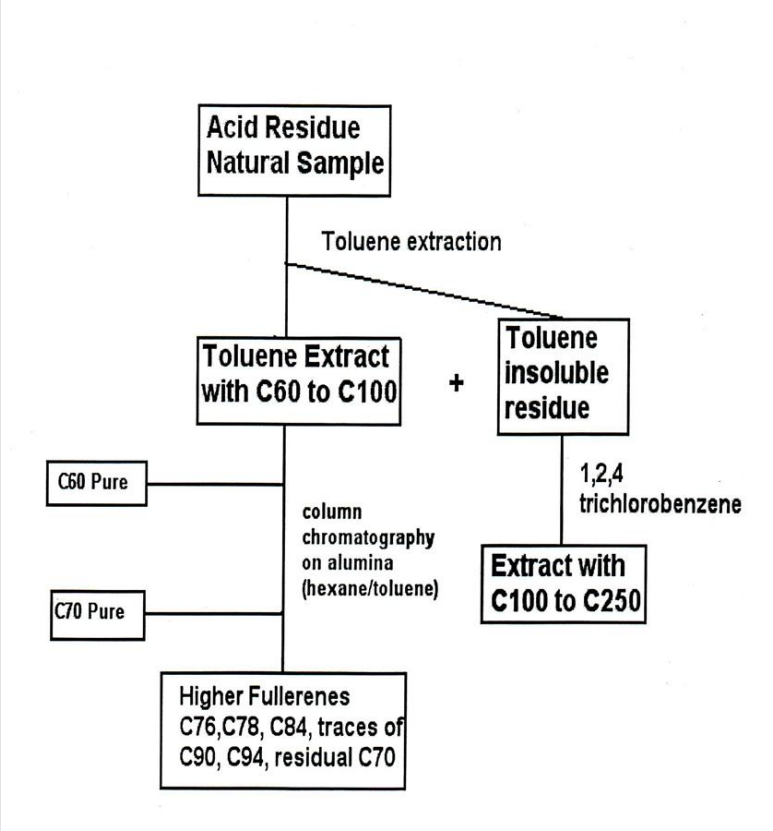
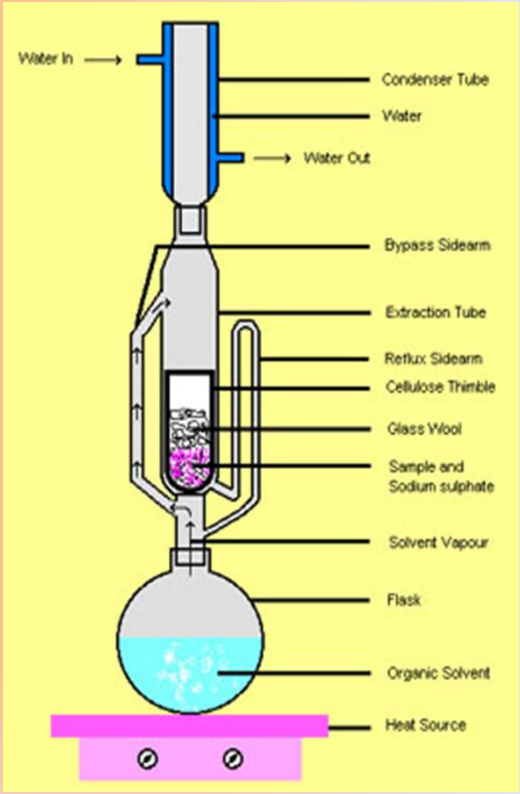
Fulereny - pocházení z vesmíru





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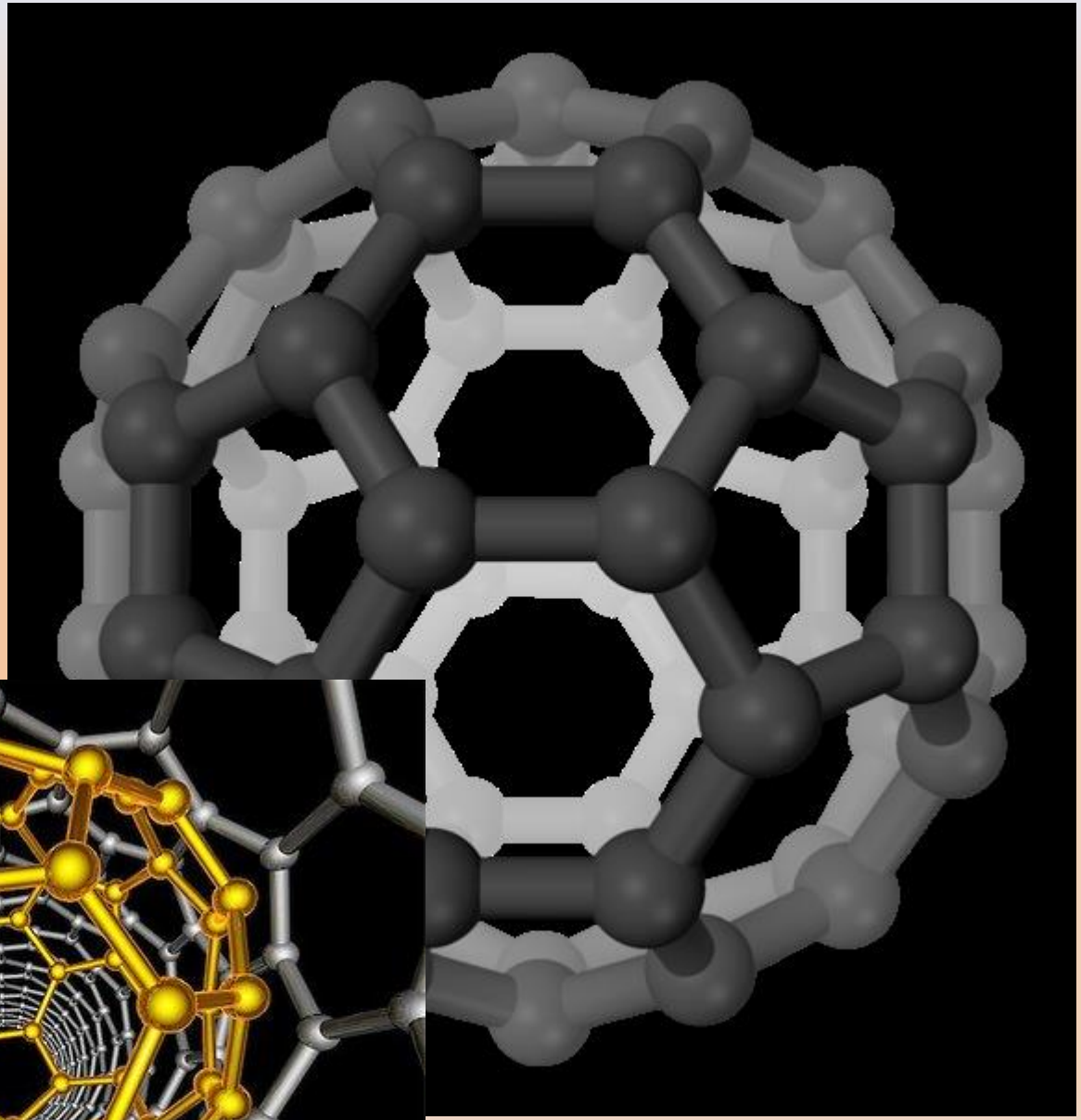

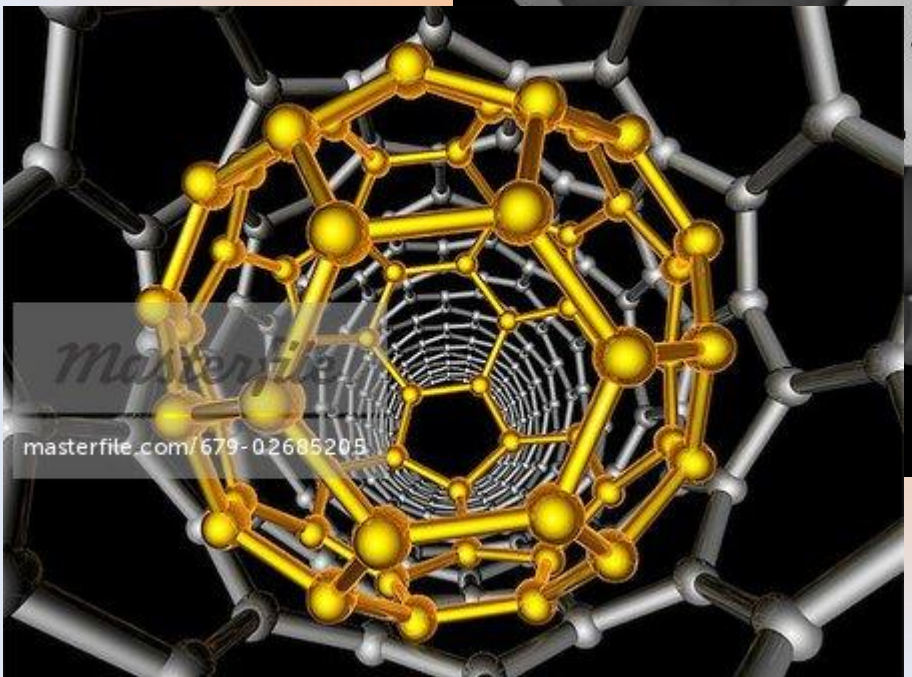

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Impact Tracers

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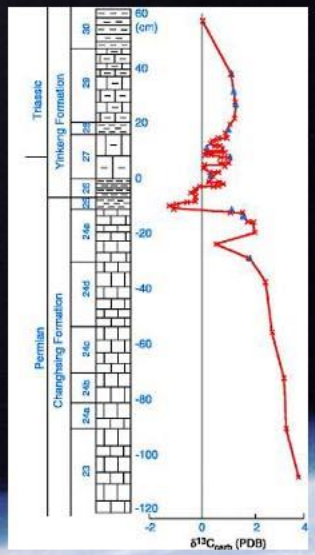
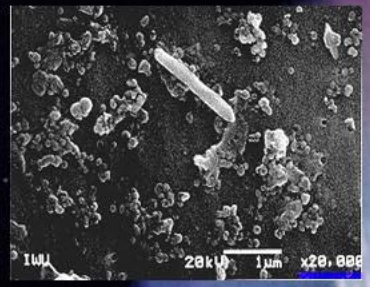
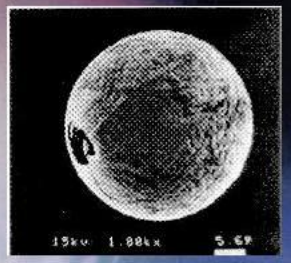
Carbon Isotopes



Carbon 'Soot'

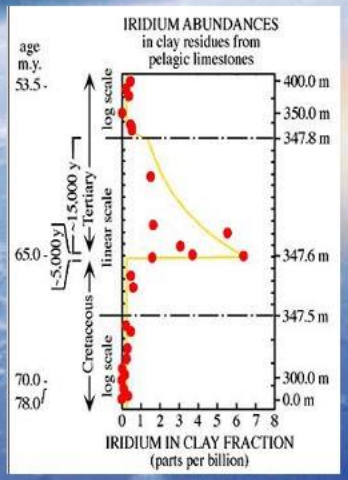


Microspherules

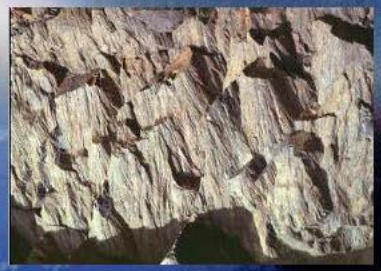


Fullerenes

Iridium

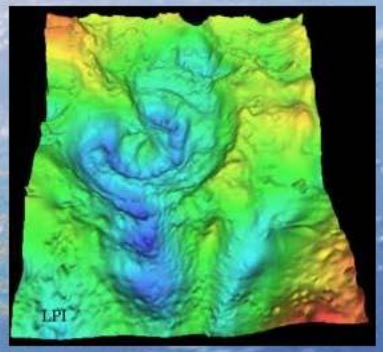


Shattercones



Shocked Quartz

Chixculub Crater



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Voda z vesmíru

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