



吉首大学学报自然科学版 » 2010, Vol. 31 » Issue (4): 76-85 DOI:

信息与工程

最新目录 | 下期目录 | 过刊浏览 | 高级检索

« Previous Articles | Next Articles »

## 地质灾害与螺旋势场间的关系——来自现代天文学和化石记录及地质调查的新证据

(1.北京大学物理系,北京100871;2.中山大学物理系,广东 珠海510275;3.北京大学元培计划委员会,北京100871;4. MAPCIS 研究中心, Millville, 新泽西08332, 美国)

### Causal Relationship Between Geological Catastrophes and Spiral Potential—New Evidence from Modern Astronomy, Fossil Records and Geological Survey

(1. Department of Physics and Astronomy, Peking University, Beijing 100871, China; 2. Department of Physics, Sun Yat-sen University, Zhuhai 510275, China; 3. Committee of Yuanpei Honors Program, Peking University, Beijing 100871, China; 4. MAPCIS Research Centre, 1700N Tenth Street, Millville, NJ 08331, U.S.A)

- 摘要
- 参考文献
- 相关文章

全文: PDF (570 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 青景资料

**摘要** 现代的银河系天文理论即密度波理论被应用以试图解释地质历史上的灾变与化石的纪录. 太阳系穿越银河系中主旋臂的时间分别对应于K-T陨击事件, P-T陨击事件与前寒武-寒武纪交界事件. 计算表明: 旋臂的引力场将对地球与太阳系产生影响, 在天文学角度看并不大但对于生物圈的影响已经足够达到所谓灾变. 同时, 来自化石记录和地质考察的证据对这一机理提供了有力的支持, 当太阳系穿越英仙座旋臂和半人马座旋臂时发生的异常事件都得到了支持. 为了解决地质运动造成地球地质

**关键词:** 记录不完整的问题 针对月球表面记录的研究工作也已经展开. 密度波理论; 撞击事件; 地质灾害; 古生物钟

**Abstract:** The Modern astronomic theory of the Milky Way Galaxy is called 'Density wave theory'. Density wave theory is used to make attempt in explaining the catastrophes and paleontological records. Coincidentally, but still disputed, each time solar system entered into the spiral arms corresponds to impact events, respectively. Furthermore, earth was heated up while traversing the spiral arms. Therefore, warmed climate would reach its climax at the end of a traversing. Calculations revealed that the spiral arms would impose an influence on earth and the solar system, which is astronomically slight but biologically considerable. Fossil records and geological survey corroborated such statement. Both abnormal events during the transition of Perseus Arm and Scutum-Crux Arm are discovered in this article. Research on lunar vestiges and craters is under process, in order to compensate earth's geologic process which might efface records.

**Key words:** density-wave theory; impact event geological catastrophe; paleontological clock

#### 引用本文:

张维加, 俞杭杰, 雷扬等. 地质灾害与螺旋势场间的关系——来自现代天文学和化石记录及地质调查的新证据[J]. 吉首大学学报自然科学版, 2010, 31(4): 76-85.

ZHANG Wei-Jia, YU Hang-Jie, LEI Yang et al. Causal Relationship Between Geological Catastrophes and Spiral Potential—New Evidence from Modern Astronomy, Fossil Records and Geological Survey[J]. Journal of Jishou University (Natural Sciences Edit), 2010, 31(4): 76-85.

- [1] LIN C C, SHU F H. On the Spiral Structure of Disk Galaxies [J]. Astrophys J., 1964, 140: 646-655.
- [2] LIN C C, SHU F H. On the Spiral Structure of Disk Galaxies. II. Outline of a Theory of Density Waves [J]. Proc. Nat. Acad. Sci., 1966, 55: 229-234.
- [3] LIN C C, SHU F H. Density Waves in Disk Galaxies [M]. [s.l.]: Noordwijk, 1966: 313-317.
- [4] LIN C C, SHU F H. Density Wave Theory of Spiral Structure [M]. // New York: Gordon and Breach Science Publ., 1971: 239-329.
- [5] ZHENG X W, XU Y, REID M J, et al. The Distance to the Perseus Spiral Arm in the Milky Way [J]. Science, 2006, 311(5757): 54-57.
- [6] BENJAMIN R A. The Spiral Structure of the Galaxy: Something Old, Something New [C]. // Massive Star Formation: Observations Confront Theory. Washington: Astronomical Society of the Pacific Conference Series, 2008: 375, 387.
- [7] Luo X H. A Discussion on the Relationship between the Galactic Arms and the Earth's Catastrophic Events [J]. Acta Scientiarum Naturalium Universitatis Pekinensis, 1992, 29(3): 261-270.

#### 服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

#### 作者相关文章

- ▶ 张维加
- ▶ 俞杭杰
- ▶ 雷扬
- ▶ DANIEL Connelly

- [8] BASU A R, PETAEV M I, POREDA R J, et al. Chondritic Meteorite Fragments Associated with the Permian-Triassic Boundary in Antarctica [J]. *Science*, 2003, 302 (5 649): 1 388-1 392.
- [9] BECKER L, POREDA R J, BASU A R, et al. Bedout: A Possible End-Permian Impact Crater Offshore of Northwestern Australia [J]. *Science*, 2004, 304: 1 469-1 476.
- [10] HILDEBRAND A R, BOYNTON W V. Proximal Cretaceous-Tertiary boundary impact deposits in the Caribbean [J]. *Science*, 1990, 248: 843-847
- [11] KELLER G, ADATTE T, GARDIN S, et al. Main Deccan Volcanism Phase Ends Near the K-T Boundary: Evidence from the Krishna-Godavari Basin, SE India [J]. *Earth and Planetary Science Letters*, 2008, 268: 293-311.
- [12] DUNCAN R A, PYLE D G. Rapid Eruption of the Deccan Flood Basalts at the Cretaceous/Tertiary Boundary [J]. *Nature*, 1988, 333: 841-843.
- [13] LIANGQUAN L, KELLER G. Abrupt deep-sea warming at the end of the Cretaceous [J]. *Geology*, 1998, 26: 995-998. [JP]
- [14] MULLEN L. Debating the Dinosaur Extinction [J]. *Astrobiology Magazine*, 2004, 10(13): 1 243.
- [15] MULLEN L. Multiple Impacts [J]. *Astrobiology Magazine*, 2004, 10(20): 1 253.
- [16] MULLEN L. Shiva: Another K-T Impact [J]. *Astrobiology Magazine*, 2004, 11(3): 1 281.
- [17] PANNELLA G, MACCLINTOCK C, THOMPSON M N. Palaeontological Evidence of Variations in Length of Synodic Month Since Late Cambrian [J]. *Science*, 1968, 162: 792-796.
- [18] PANNELLA G. Paleontological Evidence on the Earth Rotational History Since Early Cambrian [J]. *Science*, 1972, 16: 212-237.
- [19] PANNELLA G. Paleontological Evidence on the Earth's Rotational History Since Early Precambrian [J]. *Astrophysics and Space Science*, 1972, 16(2): 212-237.
- [20] WILLIAMS G E. Sunspot Periods in the Late Precambrian Glacial Climate and Solar-Planetary Relation [J]. *Nature*, 1981, 291: 624-628.
- [21] WILLIAMS G E. Precambrian Tidal Sedimentary Cycles and Earth's Paleo-rotation [M]. [S.I.]: EOS Trans Am Geophys, 1989.
- [22] WILLIAMS G E. Tidal Rhythmites: Geochronometers for the Ancient Earth-Moon System [J]. *Episodes*, 1989, 12: 162-171.
- [23] QU Y G, XIE G W, GONG Y M. Relationship Between Earth-Sun-Moon 1000 Ma Ago: Evidence from the Stromatolites [J]. *Chinese Science Bulletin*, 2004, 49(20): 2 083-2 089.
- [24] ZHU S X, HUANG X G. The Earth-Sun-Moon Dynamics from Growth Rhythms of 1 300 ma Stromatolites [J]. *Acta Micro-Palaeontologica Sinica*, 2003, 20 (1): 23-30.
- [25] SCRUTTON C T. Periodicity in Devonian Coral Growth [J]. *Palaeontology*, 1965(7): 552-558.
- [26] MCGUGAN A. Possible Use of Algal Stromatolite Rhythms in Geochronology [C]//Geology Society of American Annual Meeting. Washington: geology Society of American, 1967: 145
- [27] WELLS J W. Coral growth and geochronometry [J]. *Nature*, 1963, 197(4 871): 948-950
- [28] BERRY W B N, BARKER R M. Growth Increment in Fossil and Modern Bivalves [M]//ROSEBERG, RUNCORN. Growth Rhythms and the History of the Earth's Rotation. New York: John Wiley, 1975: 9-24.
- [29] SCHOPF J W. Earth's earliest biosphere- Its origin and evolution [M]//PRINCETON N J. [S.I.]: Princeton University Press, 1983: 543.
- [30] CAMPBELL F H A. Proterozoic Basins of Canada: Geological Survey of Canada, 1981: 81-10, 443.
- [31] MAZZULLO S. Length of the Year During the Silurian and Devonian Periods: New Values [J]. *Geol. Soc. Am. Bull.*, 1971, 82: 1 085-1 086.
- [32] ZHOU Y Q, CHEN H Y, JI G S. Tidal Rhythmites in Cambrian-Ordovician, North China and Evolution of Orbit Parameters [J]. *Earth Science*, 2002 (6): 16-20.
- [33] WILLIAMS G E, JENKINS J F, WALTER M R. No Heliotropism in Neoproterozoic Columnar Stromatolite Growth, Amadeus Basin, Central Australia: Geophysical Implications [J]. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 2007, 249: 80-89.
- [34] JOHNSON G A L, NUDDS J R. Carboniferous Coral Geochronometers [M]//ROSENBERG G D, RUNCORN S K. Growth Rhythms and the history of the Earth's rotation. London: John Wiley, 1975: 27-41.
- [35] SCRUTTON C T. Evidence for a Monthly Periodicity in the Growth of Some Corals [M]//RUNCORN S K. Palaeogeophysics. London: Academic Press, 1970: 11-16.
- [36] MCCREA W H. Ice Ages and Galaxy [J]. *Nature*, 1975, 255: 607-609.
- [37] WILLIAMS G E. History of the Earth's Obliquity [J]. *Earth-Science Reviews*, 1993, 34(1): 1-45.
- [38] HSU K J, OBERHANSLI H, GRAO J Y, et al. Strangelove ocean before the Cambrian explosion [J]. *Nature*, 1985, 316(6 031): 809-811.
- [39] ZHANG Q W, XU D Y. The Rare Event at the Precambrian-Cambrian Boundary and the Stratigraphic Position of This Boundary [J]. *Modern Geology*, 1987(11): 69-77.
- [40] CONNELLY D P. The Case for a Massive Australian Precambrian/Cambrian Impact Structure (MAPCIS) [C]//Geology Society of American NE Meeting. Washington: Geology Society of American, 2009.
- [41] MELOSH H J. The Mechanics of Pseudotachylite Formation in Impact Events [M]. *Impact Tectonics* (Springer), 2005(6): 55-80.
- [42] GLIKSON A Y. Significance of pseudotachylite vein systems, Giles basic/ultrabasic complex, Tomkinson Ranges, western Musgrave Block, central Australia [J]. *BMR Journal of Australian Geology & Geophysics*, 1990, 11(4): 509-519.
- [43] CONNELLY D P. Age dating MAPCIS (Massive Australian Precambrian/Cambrian Impact Structure) a Multi-Modal Indirect Approach [C]//Geology Society of American Annual Meeting. Washington: Geology Society of American, 2009: 418.

[44] HILL AC.New records of Ediacaran Acraman Ejecta in Drillholes from the Stuart Shelf and Officer Basin,South Australia [J].Meteoritics and Planetary Science.2007,42: 1 883-1 891.

没有找到本文相关文献

版权所有 © 2012《吉首大学学报（自然科学版）》编辑部

通讯地址：湖南省吉首市人民南路120号《吉首大学学报》编辑部 邮编：416000

电话传真：0743-8563684 E-mail：xb8563684@163.com 办公QQ：1944107525

本系统由北京玛格泰克科技发展有限公司设计开发 技术支持：support@magtech.com.cn