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The Compilation of Top Journals' Abstracts (1990-2010)

极地科学前沿与热点

顶级期刊论文摘要汇编 (1990-2010)

孙立广 主编

中国科学技术大学出版社



“南北极环境综合考察与评估专项”

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极地科技发展战略研究资助

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内 容 简 介

本书是“极地国家利益战略评估——极地科技发展战略研究”的一项基础工作,对 1990~2010 年间发表在 *Nature*, *Science*, *PNAS* 三大期刊上有关极地科学的 650 篇论文的摘要进行了分类梳理与翻译,反映了当代国际极地科学的前沿与热点,这为我国的极地科学家、青年研究人员和研究生们提供了一个了解国际极地学术动态的捷径。同时,从对第一作者的国别和所属研究机构以及对不同学科论文发表数量的统计分析,可以了解各个国家极地不同学科的优势研究领域和学科发展动态,这为科学家追踪极地科学前沿、为我国极地科技发展战略的制定提供了重要参考。

本书可以说是一部工具书,它对极地科学相关专业的研究人员、高等院校的教师和学生以及相关政府部门的政策制定者和执行者、基金受理部门的管理和研究人员有重要的参考价值,同时对非极地科学相关学科的研究人员也有一定的参考价值。

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前言

当今世界,信息网络为我们带来了一个五彩缤纷的世界,与此同时,浩如烟海的文献又让我们在“路”上迷茫。我们在极地古生态、古环境、古气候与大气化学的研究过程中,深感科学文献的重要性,它将引导和启发我们的思路 and 方向,而海量的文献又让我们无所适从。从学科分类意义上来看,极地科学可能是门类最齐全的科学,几乎涵盖了地球科学和生命科学的所有学科。以地球科学为例,几乎所有的地球科学分支都在极地研究中派上了用场,极地科学是系统地球科学的一部分。地球上除了极地可能没有一块陆地、海洋能容纳这么多国家、这么多门类的科学家聚集在一起探索自然的奥秘。极地是资源的宝库,是发现的摇篮,是国际科学合作的舞台。同时,它也是国家利益和人类利益竞争与平衡的舞台,这就决定了这个舞台的重要性,也就可以非常自然地了解为什么几乎所有有实力的国家都把目光聚焦到了南极和北极,为什么有那么多各个门类的科学家不畏艰险奔向那个冷酷严寒的冰封世界。

我国的极地梦很早就开始了,现在极地研究已成为实现我国“海洋强国梦”的重要组成部分,并得到了国家领导人的高度重视。1984年,邓小平为南极长城站建站题词:“为人类和平利用南极做出贡献。”习近平主席2014年11月18日在澳大利亚登上了我国的雪龙号极地考察船,他在慰问科考队员时指出:南极科学考察意义重大,是造福人类的崇高事业,中国开展南极科考为人类和平利用南极做出了贡献。他表示愿与国际社会一道,更好地认识南极、保护南极、利用南极。这个讲话是对南极考察队员说的,同样适用于地缘上离我们更近的北极,因为,这是我国国家领导人关心极地、造福人类、和平利用南极的一次宣示。

李克强总理也指出:“极地考察是人类探索地球奥秘的壮举,在我国海洋事业中占有重要地位,对促进可持续发展具有重大意义。”

国家领导人的指示在中国极地考察史上具有里程碑的意义,也为中国的极地科学探索与和平利用南极指出了方向。

我国的极地科学工作者要在和平利用南极上有所作为,首先要在认识南极上有所作为,在这方面要做出更大的贡献。要赶上极地强国在科学认识极地方面所取得的成就,首先应该知道国际极地科学的前沿在哪里,热点在哪里,难点在哪里,也应知道我们所处的位置在哪里,这样我们就可以避免走弯路、走重复的路。同时,在关注不同学科领域的进展中,我们可以打开多个窗户,从不同角度去探索新的方向,寻找新的道路,这也有利于多学科交叉。为此,我们对极地科学按九大研究领域进行了初步划分,即冰川、冰芯古气候,大气科学,海洋古气候、古环境,生物科学,现代海洋科学,地质、测绘,陆地古环境,环境污染,天文、空间物理。对这九个领域在1990~2010年中在*Nature*, *Science*, *PNAS*三大国际顶级期刊上发表的650篇论文摘要分类进行了翻译及分析整理。

从文献的数据统计分析中可以发现,冰川、大气、古气候与古环境及生命科学,不论是在南极还是在北极都是研究的热点;从不同年份文献发表的数据来看,每年的文献发表数量呈波动变化,总体上似乎与国际经济形势的起落一致或略滞后,显然与各国政府对极地研究的投入量有关。

从文献发表的国家来看,美国、英国仍然是亮点论文发表数量的第一梯队,第二梯队是法国、加

拿大、德国、瑞士和澳大利亚,中国、日本、俄罗斯等仍是相对落后的,与美英相比还有很大差距。研究水平上的差距是主要的,但是另一方面,由于三大期刊均属于美国或英国,语言方面的劣势和国籍差异也是存在的。因此,数字上的巨大差异并不表示研究水平上有同样大的差异,创造中国科技期刊在国际上的优势地位,是改变这种状态的重要因素。实际上,当我们进一步统计专业学术期刊上各国的论文贡献时,我们发现,上述的巨大差异就减小了,中国的极地论文数量近些年来已经在快速地增长,正在缩小与美英等国家的距离。

重要的不是在于缩小论文数量上的差距,而是在极地科学研究方面,我们能有多少重大的令世人关注的科学发现,极地科学的新发现永远是我们追求的目标。因此我们特别关注三大公认的国际顶级期刊的极地论文,并对这些论文进行了梳理与统计摘编。它将让我们看到极地科学的前沿、热点与高度,尽管我们并不认为这些论文都代表了极地科学的顶级水平,也并不认为在其他综合或专业学术期刊上没有顶级的论文和重大的科学发现。

由于涉及不同的学科领域,译者的专业水平有限,虽然经过美国国立健康研究所(NIH)王玉宏研究员的精细核校,但仍然可能存在误译或译文欠准确的情况。好在,保留了论文摘要原文,读者可以做出自己的判读。

参加本书翻译的有:黄涛、周鑫、何鑫、程文瀚、黄婧、贾楠、刘毅、罗宇涵、晏宏、秦先燕、邵达、邱世灿,臧晶晶进行了后期的编辑工作。

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孙立广

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