

OceanBase: a Marine Science & Technology Bibliographic Database

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Abstract: OceanBase, available on trial from Elsevier, was evaluated by comparing its coverage of oceanographic topics of current interest with coverage by several other databases already available to the authors. Although OceanBase retrieved citations for all topics searched, retrieval was much less than in the other databases.

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INTRODUCTION

The California Digital Library (CDL) arranged for a trial of a set of science databases made available to the University of California (UC) through Elsevier ScienceDirect in April and May 2000. For our original report to CDL, OceanBase was evaluated by 4 librarians, representing 4 different University of California Libraries: J. Markham is Aquatic Sciences/Biology Librarian at UC Santa Barbara. UCSB has a strong marine science program and library collection. P. Brueggeman is Director, Scripps Institution of Oceanography Library, UC San Diego, representing the strongest marine science program and collection in the UC System. V. Welborn is Ocean Sciences Librarian at UC Santa Cruz, which has a strong marine science program and collection. J. Gelfand, Applied Sciences Librarian, UC Irvine, also participated in the evaluation for CDL, as a representative of a library with a more multidisciplinary approach to marine sciences, with less emphasis on oceanography. In order to provide more information for the IAMSLIC community, the first 3 authors, all marine science librarians, then expanded the study to include more comparison databases and produce the report presented here.

METHODS

Many papers have reviewed and compared databases. Various approaches have been used by different authors, depending in part on the object of the evaluation. Markham (1992) surveyed database evaluation literature and divided database aspects compared into coverage, indexing, and database protocols. Our evaluation was conducted to answer one question: Considering the databases to which we already subscribe, individually or systemwide, should we add a systemwide subscription to OceanBase? Accordingly, our evaluation efforts were concentrated on coverage. We reasoned that the database is usable enough that we can conduct searches, and any purchase decision would be based on content, contribution to our programs, and price, not usability. This is consistent with other CDL collection and access decisions.

From OceanBase description: "OceanBase provides you with the entire contents of *Oceanographic Literature Review*, including *Ocean Data News* together with material from *Fluid Abstracts*, *Civil Engineering* and *Ecological Abstracts*. Coverage includes physical oceanography and fluid dynamics; marine meteorology; chemical oceanography; marine geology and geophysics; biological oceanography; marine ecology; pollution; environmental issues; toxicology; applied oceanography; remote sensing; coastal and offshore engineering; natural resources; ports, harbors and shipping; waste management, and policy and law. The database holds over 50,000 records."

With this as a background, we then compiled a list of 25 current topics, as keywords, from our knowledge of current research and by scanning tables of contents of recent issues of nine representative oceanography or marine science journals:

Continental Shelf Research; Deep Sea Research; Dynamics of Atmospheres & Oceans; Journal of Oceanography; Journal of Sea Research; Limnology & Oceanography; Marine Environmental Research; Oceanologica Acta; Progress in Oceanography

These keywords mostly fell into topics in three general areas of oceanography: physical oceanography, biological oceanography, and ocean pollution.

The keywords were then searched in OceanBase, and for comparison, also in other relevant databases available to some of us, either systemwide on CDL, or locally on certain campuses. All searches were restricted to items published 1993-2000 (except for INSPEC, 1995 to present) to compare with the reported coverage of OceanBase.

The comparison databases were divided into two categories: aquatic or marine science databases ("Aquatic"); and discipline specific databases not restricted to the marine or aquatic environment ("Non-Aquatic"). The 4 aquatic databases were: Aquatic Sciences & Fisheries Abstracts (ASFA) and Oceanic Abstracts, available through Cambridge Scientific's IDS service at UCSB; and 2 NISC superfiles, Aquatic Biology, Aquaculture and Fisheries (ABAFR), and Marine Oceanographic and Freshwater Resources (MOFR) both available at SIO/UCSD. ABAFR includes the biology section of ASFA as well as several other fish, aquaculture, and fisheries databases. MOFR includes Oceanic Abstracts, the non-biology sections of ASFA, and several other databases which encompass marine biology and other marine sciences. The 5 non-aquatic databases, mostly discipline specific, were: BIOSIS Previews (Biology) available to all campuses through CDL; GeoRef (Geology) available on CDL from Stanford University; INSPEC (Physics) also available on CDL; SciFinder Scholar (Chemical Abstracts) available on our campuses through individual subscription; and Science Citation Index, a very multidisciplinary science database available on our campuses through individual subscription.

RESULTS

The results of the content searches are presented as number of hits in each database for each term, for aquatic databases in Table 1 and for non-aquatic databases in Table 2. From the results, it is obvious that, for almost all topics, OceanBase has fewer hits than the other databases tested, often showing a very marked difference. OceanBase, at 50,000+ records, is a much smaller database than the other databases. File sizes for the other aquatic databases are: ABAFR (over 799,000); ASFA (over 697,000); MOFR (over 885,000); Oceanic Abstracts (over 208,000). For the non-aquatic databases, file sizes are: BIOSIS Previews (over 3,900,000); INSPEC (over 1,800,000); SciFinder Scholar (over 15,000,000); Science Citation Index (over 17,000,000). Information on the number of records in the GeoRef database for items published 1993-2000 is not readily available.

CONCLUSIONS

OceanBase retrieves citations for all topics searched, and would be satisfactory for a basic search on nearly any oceanographic topic aiming to cover the major marine science journals. However, many of the major marine science journals are already covered in a variety of discipline-oriented databases already licensed systemwide by UC. OceanBase provides an ocean focal point to the some of the coverage already available in other CDL-licensed databases and undoubtedly extends that coverage further. OceanBase provides an inexpensive alternative to the more expensive databases subscribed to by UCSD and UCSB, which are absolutely essential to support research programs of that magnitude at the doctoral level. For UC campuses that do not have a strong marine science program, and thus do not wish to pay a large subscription amount for abstracting and indexing coverage of marine science, OceanBase would be sufficient for most needs, particularly undergraduate needs, and should be attractive because of its lower cost. However, the benefits are mostly to the less marine-focused campuses, where general undergraduate use is anticipated.

With search methods available to us at this time, with no easy way to eliminate duplicates, it was not determined how many of the items retrieved on OceanBase may have been unique. It is assumed that OceanBase would have a relatively small percentage of unique items compared to the much larger databases, particularly the NISC superdatabases which merge several databases into one. OceanBase might be an addition to our existing UC databases if crossfile searching were available, due to general undergraduate usage across the UC system.

According to the tests we carried out, OceanBase cannot replace the other databases on those campuses with strong marine science research and education interests, cannot retrieve more than a fraction of that retrieved by the others, and is not adequate for in-depth marine science searching. OceanBase would be a good addition for a campus which presently has none of the other marine science databases tested here, since undergraduate coursework may address the ocean environment. For those who already have ASFA, Oceanic Abstracts, ABAFR and MOFR databases, however, there would be no reason to pay for OceanBase in addition to existing campus subscriptions. As we were asked to make a recommendation based on a systemwide subscription, we concluded that we should not subscribe to OceanBase at this time.

REFERENCE

Markham, J.W. (1992). "Bibliographic database comparisons." *In: The Aquatic Environment: Description, Management and Conservation: Proceedings of the 17th Annual Conference* (ed. by E. Fuseler McDowell & S. Wiist), pp 87-95. Fort Collins, CO : IAMSLIC.

TABLE 1: Number of Hits from Keyword/Phrase Searches in OceanBase and

4 Aquatic Databases

TOPIC	Ocean Base	ABAFR	ASFA	MOFR	Oceanic Abs
ATOC*	5	5	15	61	12
Dissolved organic matter	244	529	897	787	429
ENSO and warming	42	16	56	69	38
Equatorial countercurrent	49	12	59	89	46
Kuroshio	343	224	615	644	363
Onshore transport	22	26	42	54	34
sea surface temperature and california**	86	50	119	74	92
surf-zone flow	2	2	2	1	2
Temperature and salinity and marine	654	1,326	3,782	966	2,323
Thermohaline	586	64	724	1,087	545
yellow substance or gelbstoff	51	27	72	80	41
algal dynamics and marine	1	0	4	2	3
calanus finmarchicus	115	216	215	151	167
diel migration and marine	31	26	35	19	28
Euphausia pacifica or krill	243	647	551	375	326
Intertidal and california	86	177	237	122	172
littoral and california	11	18	46	27	23
marine snow	77	83	110	119	97
Phytoplankton distribution	49	85	64	64	39
Plankton distribution	23	53	33	39	16
Vertical distribution	723	2,518	2,749	1,730	1,480

Vertical migration	304	827	527	461	275
Dissolved hydrocarbon	4	2	2	20	0
Intercalibration and trace metals	1	0	2	2	1
Petroleum hydrocarbon	119	116	80	4,285	35

* ATOC = Acoustic Thermometry of Ocean Climate ** Searching "sea surface temperature" in OceanBase results in message: "Your search has been interrupted because it retrieved too many records." Adding "and california" allows search to continue.

TABLE 2: Number of Hits from Keyword/Phrase Searches in OceanBase and 5 Non-Aquatic Databases

TOPIC	Ocean Base	BIOSIS	GeoRef	INSPEC	SciFndr Scholar	Science Cit. Index
ATOC	5	2	0	14	11	22
Dissolved organic matter * and marine	244	1,681 *248	358 *128	79 *25	2123 *286	>500** *381
ENSO and warming	42	15	13	79	26	141
Equatorial countercurrent	49	4	5	41	6	0
Kuroshio	343	201	49	39	86	>500
Onshore transport	22	52	61	20	12	47
sea surface temperature and california	86	41	30	37	10	154
surf-zone flow surf zone flow	2	4	6	1 29	3	3
Temperature and salinity and marine	654	403	216	54	317	>500
Thermohaline	586	95	250	133	197	>500
Yellow substance or gelbstoff	51	118	6	20	202	129
algal dynamics and marine	1	47	3	1	9	3
Calanus finmarchicus	115	161	1	3	31	330
diel migration and marine	31	42	0	0	5	21
Euphausia pacifica or krill	243	450	1	5	182	>500
Intertidal and california	86	150	80	4	24	265
Littoral and california	11	13	37	0	10	42
Marine snow	77	145	46	39	76	380
Phytoplankton distribution	49	976	83	3	320	137

Plankton distribution	23	588	125	4	200	45
Vertical distribution	723	3,191	1070	2739	2926	>500
<i>*and marine</i>		<i>*302</i>	<i>*195</i>	<i>*81</i>	<i>*159</i>	<i>*449</i>
vertical migration	304	859	572	494	471	>500
<i>*and marine</i>		<i>*107</i>	<i>*87</i>	<i>*7</i>	<i>*37</i>	<i>*226</i>
dissolved hydrocarbon	4	127	113	22	926	22
<i>*and marine</i>		<i>*14</i>	<i>*21</i>	<i>*5</i>	<i>*39</i>	<i>*1</i>
Intercalibration and trace metals	1	2	0	0	1	5
petroleum hydrocarbon	119	440	4136	59	6475	240
<i>*and marine</i>		<i>*53</i>	<i>*586</i>	<i>*6</i>	<i>*360</i>	<i>*30</i>

* In non-aquatic databases, for topics that have many non-aquatic contexts, "and marine" was added in a second search to narrow the search to marine topics for a better comparison with this aquatic database.

** In Science Citation Index, retrieval is limited to the first 500 items.