Re: Action SCUFN 31/08

SCUFN Generic Term Subgroup to prepare a strawman paper proposing a general strategy and possible guidelines defining the optimal horizontal resolution between undersea features that are eligible for naming

Generic Terms Group
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1. Background

This action originally was assigned as Action SCUFN30/106 (and SCUFN30/113): to propose a general strategy to define the optimal horizontal resolution, which derived from the many Chinese proposals in SCUFN30 that proposed relatively minor features in close association with the nearby already-recognized features. This type of proposal is considered as not good protocol, since this can result in clutter and inflation of undersea feature names and a lack in consistency of names with already-recognized associated features, thereby SCUFN cannot manage these undersea feature names in an appropriate fashion.

SCUFN needs to establish a general strategy of how to deal with the naming proposals in general, when taking into consideration that the current technology allows us to know more in detail the structure and morphology of the undersea features. In other words, SCUFN may want to limit the size (relief and horizontal extent) of the undersea features to be considered in a SCUFN meeting.

2. Analysis of a proposed feature

The Generic Terms Group analyzed a proposed feature: Lixia Seamount proposed by China (CCUFN) in SCUFN30. Within the mapped area shown below (**Fig. 1**), there have been 9 already-recognized features, including the CBF Rise, all proposed by Japan (JCUFN). The specific names of these features are somewhat relevant to stellar names, including the Japanese dialects for the Southern Cross (since the Southern Cross can be seen at this latitude). In 2017 at SCUFN30, CCUFN proposed 8 feature names in this area, every being named after the Chinese "24 Solar Terms". The difficulties with which the SCUFN30 faced for these CCUFN proposals included:

(1) Clutter of undersea feature names within a relatively small area (90 NM * 150 NM), the JCUFN-derived names and CCUFN-derived names are being mixed-up.
(2) While the above-situation should be accepted, but some of the CCUFN proposals, like Lixia Seamount, were deemed dealing with minor features not eligible for being individually named. For example, Lixia Seamount was considered as a part of the already-recognized Shinjubsohi Escarpment by SCUFN30, therefore not eligible for being individually named.

3. Discussion

SCUFN ToR 1.2 reads "It is the function of the Sub-Committee to select those names of undersea features in the world ocean appropriate for use on GEBCO graphical and digital products, on the IHO small-scale International chart series, and on the regional IBC series" (note: IBC = International Bathymetric Chart).

Following this paragraph, the Generic Terms Group considers that undersea features eligible for naming should generally be identified on IHO small-scale International chart series, and on the regional IBC series. The Generic Terms Group sees that the map scales of IBC series are various, but the largest scale is starting at 1:1,000,000. For example, the International Bathymetric Chart of the Central Eastern Atlantic (IBCEA) is to be produced at a scale of 1:1,000,000 (https://www.ngdc.noaa.gov/mgg/ibcea/html/ibcea_ie.htm), and most of the Japanese small scale bathymetric charts are at a scale of 1:1,000,000. For your information, one of the most successful IBC series, the International Bathymetric Chart of the Arctic Ocean (IBCAO), is at a scale of 1:6,000,000.

In terms of the bathymetric data, the IBCAO Version 3.0 employs a 500-m grid (Jakobsson et al., 2012), whereas the latest GEBCO grid (GEBCO-2019) has the almost similar grid size, a 15 arc-second grid (= ~460-m grid) (https://www.gebco.net/data_and_products/gridded_bathymetry_data/gebco_2019/gebco_2019_info.html).

Following these situations, the Generic Terms Group argues that it would be reasonable to make a criterion for minor undersea feature eligible for naming in SCUFN based on a map scale of 1:1,000,000 and bathymetric data size of 15 arc-second grid.

The Generic Terms Group generated a map (**Fig. 2**) of the same area as in **Fig. 1**, using the GEBCO-2019 grid to test our argument. It is obvious that some features are clearly identified in GEBCO-2019 map (e.g., Kazahayahoshi Smt. and Jingzhe Smt.), but some are difficult to be identified (e.g., Shinjuboshi Escarpment and Lixia Smt.). This simple test shows that our argument is generally acceptable, but SCUFN needs to exert careful examination of submitted proposals (and supporting maps).

Reference:

Jakobsson et al., 2012, The International Bathymetric Chart of the Arctic Ocean (IBCAO) Version 3.0, *Geophysical Research Letters*, 39, L12609, DOI:10.1029/2012GL052219.

4. A guideline defining the areal size of an undersea feature

As a conclusion of the Generic Terms Group analysis and discussion, we propose the following guideline defining the areal size of an undersea feature that is eligible for naming.

"The areal size of an undersea feature should generally be identified on a map scale of 1:1,000,000 and/or a map generated with a 15 arc-second grid bathymetric data. When proposing a minor undersea feature that does not meet this criterion, the proposer should explain the reason why they want to name it. The reasoning may include that the proposed feature is (1) an important landmark for geological and/or geophysical and/or biological phenomena, (2) an important landmark for sampling point such as a dredge point, and/or (3) an important landmark for description of geology and/or geophysics of the area, etc.".

End

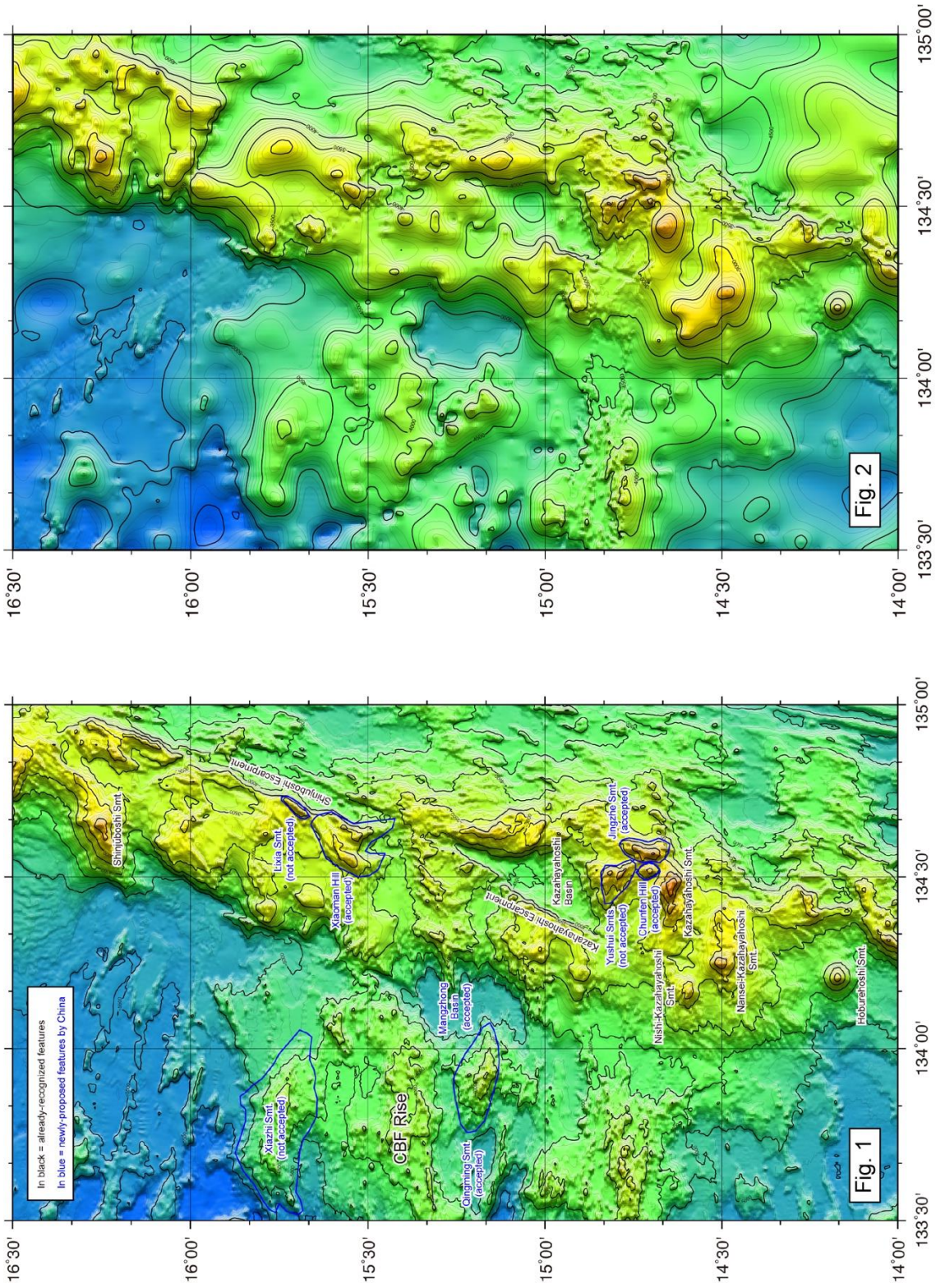

Fig. 1. Map showing the naming situation in an area of the Kyushu-Palau Ridge, occurred in SCUFN30. The base map is generated by JCUFN using a 200-m grid of Hydrographic and Oceanographic Department of Japan. Contours in 100 m.

Fig. 2. Map showing the same area as in Fig. 1. The map is generated using a 15 arc-second grid of GEBCO-2019. Contours in 100 m.