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On the Moosinesq Approximation

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ABSTRACT

Did you know moose exist? 'Cause they do, and they're on the loose!

Keywords: I don't know.

1. INTRODUCTION

The Boussinesq approximation is a commonly-used approximation in the field of fluid dynamics [liberal citations of authors' work here]. It has [certain advantages] and [certain disadvantages], and is ultimately recognized for its great utility in [fluids jargon here].

However, the Boussinesq approximation must be abandoned in situations where compressibility is an important consideration. This can occur in microbiology (Ravetto et al. 2014), and it has long been known that wildlife ecology is another such situation (e.g. Enright 1963). Such studies have often focused on domains in which animal compressibility is more pronounced (i.e. deep-sea life). However, motivated by a recent report of an unexpected occurrence of acute compression and deformation in a land-animal context (Gudmannsson et al. 2018)—as well as a delightful linguistic coincidence—we present ground-breaking work on fundamental fluid dynamics in the context of the moose (*Alces alces*), a domain which we dub the *moosinesq approximation*. This approximation is suitable for describing the active and dynamic inner lives and environments (both physical and mental; see Gibson 2015) of the moose.

The moose is a large mammal indigenous to North America and Europe, which can have a mass of up to 550 kg and a height of up to 2 m (CPW 2021). ... Our study is not the first time that moose have prompted significant scientific or technological development (see, e.g., Händel et al. 2009).

2. NUMERICAL METHODS

Words about Fig. 1 (left)[1].

3. RESULTS

4. CONCLUSIONS & DISCUSSION

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[1] Available online at https://www.publicdomainpictures.net/en/view-image.php?image=317077&picture=moose.

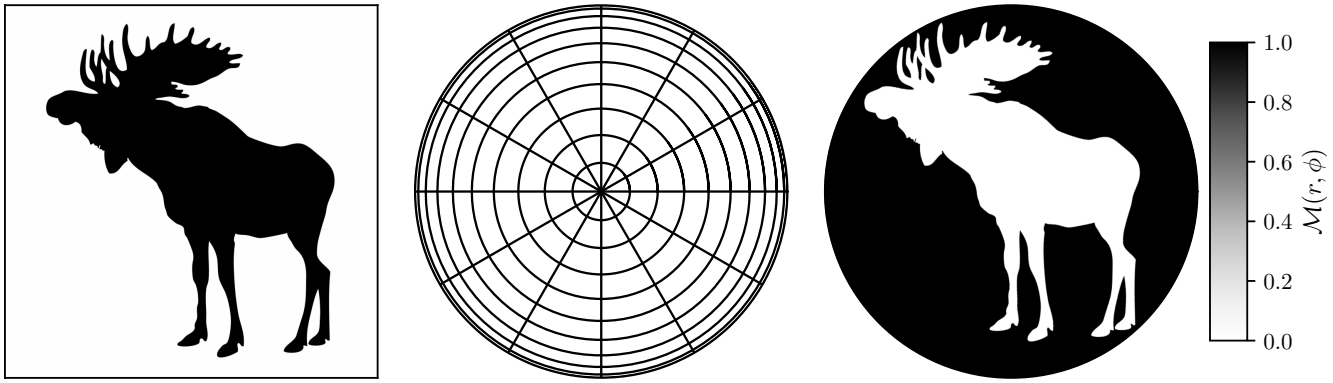

Figure 1. (Left) A public-domain silhouette of a moose. (Middle) A sparse representation of the polar-coordinate grid on which we represent fields in our simulation. (Right) The Moosinesq mask $\mathcal{M}$ felt by our equations; fluid motions are damped where $\mathcal{M} > 0$.

The methods developed in this work may suggest a pathway toward unraveling the mysteries of other wildlife-related fluid phenomena, such as the powerful and mysterious otter of Schwab (2021), also known as the Papaloizou-Pringle Patronus. Lessons learned from this and future work on the moosinesq approximation may also be of interest to those working in the yet-underexplored field of *goosinesq* convection.

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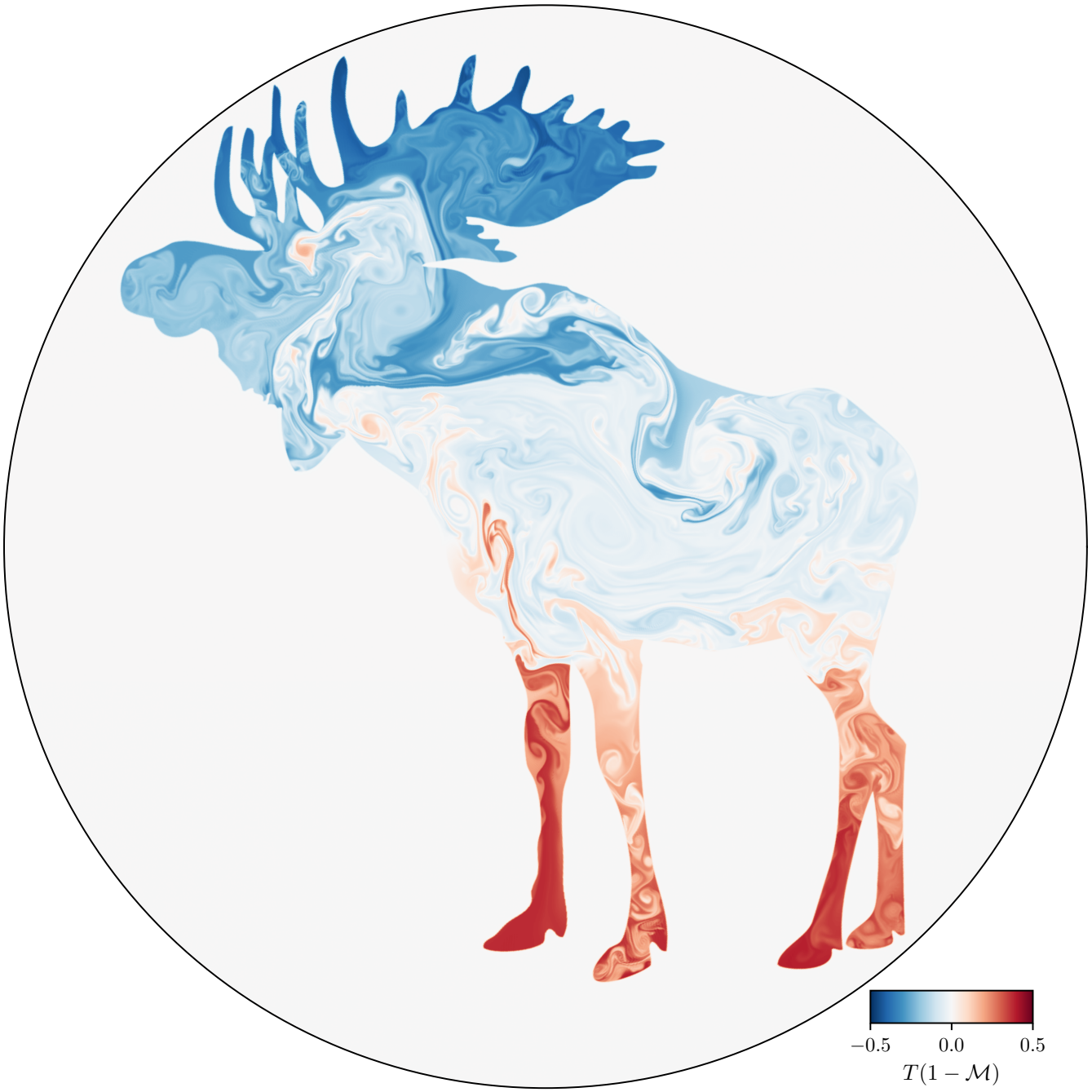

Figure 2. The beautiful, powerful moose.