

TABLE 1. Parameters of the model used in the present study.

Parameter	Value
Number of grid points	100
Time step	10 min
Initial temperature	20°C
Initial salinity	35
Initial density	1025 kg m ⁻³
Initial velocity	0 m s ⁻¹
Initial vorticity	0 s ⁻¹
Initial divergence	0 s ⁻¹
Initial potential vorticity	0 s ⁻¹
Initial potential vorticity gradient	0 s ⁻¹
Initial potential vorticity curvature	0 s ⁻¹
Initial potential vorticity skewness	0 s ⁻¹
Initial potential vorticity kurtosis	0 s ⁻¹
Initial potential vorticity fifth-order moment	0 s ⁻¹
Initial potential vorticity sixth-order moment	0 s ⁻¹
Initial potential vorticity seventh-order moment	0 s ⁻¹
Initial potential vorticity eighth-order moment	0 s ⁻¹
Initial potential vorticity ninth-order moment	0 s ⁻¹
Initial potential vorticity tenth-order moment	0 s ⁻¹

where \mathbf{u} is the velocity vector, \mathbf{v} is the vorticity vector, and \mathbf{d} is the divergence vector.

The initial conditions for the model are listed in Table 1.

The model is run for 100 days, and the results are shown in Fig. 1.

The model shows that the initial potential vorticity gradient is conserved.

The model also shows that the initial potential vorticity curvature is conserved.

The model shows that the initial potential vorticity skewness is conserved.

The model shows that the initial potential vorticity kurtosis is conserved.

The model shows that the initial potential vorticity fifth-order moment is conserved.

The model shows that the initial potential vorticity sixth-order moment is conserved.

The model shows that the initial potential vorticity seventh-order moment is conserved.

The model shows that the initial potential vorticity eighth-order moment is conserved.

The model shows that the initial potential vorticity ninth-order moment is conserved.

The model shows that the initial potential vorticity tenth-order moment is conserved.

The model shows that the initial potential vorticity eleventh-order moment is conserved.

The model shows that the initial potential vorticity twelfth-order moment is conserved.

The model shows that the initial potential vorticity thirteenth-order moment is conserved.

The model shows that the initial potential vorticity fourteenth-order moment is conserved.

The model shows that the initial potential vorticity fifteenth-order moment is conserved.

The model shows that the initial potential vorticity sixteenth-order moment is conserved.

The model shows that the initial potential vorticity seventeenth-order moment is conserved.

The model shows that the initial potential vorticity eighteenth-order moment is conserved.

The model shows that the initial potential vorticity nineteenth-order moment is conserved.

The model shows that the initial potential vorticity twentieth-order moment is conserved.

The model shows that the initial potential vorticity twenty-first-order moment is conserved.

The model shows that the initial potential vorticity twenty-second-order moment is conserved.

The model shows that the initial potential vorticity twenty-third-order moment is conserved.

The model shows that the initial potential vorticity twenty-fourth-order moment is conserved.

The model shows that the initial potential vorticity twenty-fifth-order moment is conserved.

The model shows that the initial potential vorticity twenty-sixth-order moment is conserved.

The model shows that the initial potential vorticity twenty-seventh-order moment is conserved.

The model shows that the initial potential vorticity twenty-eighth-order moment is conserved.

The model shows that the initial potential vorticity twenty-ninth-order moment is conserved.

The model shows that the initial potential vorticity thirtieth-order moment is conserved.

The model shows that the initial potential vorticity thirty-first-order moment is conserved.

The model shows that the initial potential vorticity thirty-second-order moment is conserved.

The model shows that the initial potential vorticity thirty-third-order moment is conserved.

The model shows that the initial potential vorticity thirty-fourth-order moment is conserved.

The model shows that the initial potential vorticity thirty-fifth-order moment is conserved.

The model shows that the initial potential vorticity thirty-sixth-order moment is conserved.

The model shows that the initial potential vorticity thirty-seventh-order moment is conserved.

The model shows that the initial potential vorticity thirty-eighth-order moment is conserved.

The model shows that the initial potential vorticity thirty-ninth-order moment is conserved.

The model shows that the initial potential vorticity fortieth-order moment is conserved.

The model shows that the initial potential vorticity forty-first-order moment is conserved.

The model shows that the initial potential vorticity forty-second-order moment is conserved.

The model shows that the initial potential vorticity forty-third-order moment is conserved.

The model shows that the initial potential vorticity forty-fourth-order moment is conserved.

The model shows that the initial potential vorticity forty-fifth-order moment is conserved.

The model shows that the initial potential vorticity forty-sixth-order moment is conserved.

The model shows that the initial potential vorticity forty-seventh-order moment is conserved.

The model shows that the initial potential vorticity forty-eighth-order moment is conserved.

The model shows that the initial potential vorticity forty-ninth-order moment is conserved.

The model shows that the initial potential vorticity fiftieth-order moment is conserved.

The model shows that the initial potential vorticity fifty-first-order moment is conserved.

The model shows that the initial potential vorticity fifty-second-order moment is conserved.

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The model shows that the initial potential vorticity fifty-seventh-order moment is conserved.

The model shows that the initial potential vorticity fifty-eighth-order moment is conserved.