Geophysical Research Abstracts
Vol. 13, EGU2011-11003, 2011
EGU General Assembly 2011


# Transport of Matter from Free Falling Drops on the Surface of Quiescent and Rotating Fluids

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Effect of vortex ring formation after impact of the free falling drop on the surface of quiescent fluid layer is under investigation for more than one and half century. Conditions of ring formation and its transformation into cascade of secondary vortices are defined and flow patterns are documented. Less is known about flow pattern in generally rotating homogeneous fluid. We registered by photo and fast video cameras flow pattern formed after impact of free falling drop on the surface of deep layers of quiescent or involved into rotation in compound vortex liquid in the same container. Compound vortex was formed by disc rotating at the bottom of cylindrical container. Three types of dye were used that are light solution on uranil, more dense solution of ink dye and heavy stamp dye solution in tap water. In quiescent water velocity of lower and upper levels of cascade domain and rate of next level of ring vortex formation increase with grow of the dye density. In rotating fluids light dye does not propagate inside the fluid body directly and forms a spot from which spiral arms are spinning. From the heavy stamp dye spot long due finger are extended into rotating flows. Different flow patterns and measurements of the flow geometry are presented.