الجمهورية الجزائرية الديمقراطية الشعبية
وزارة التعليم العالي والبحث العلمي
جامعة قسنطينة 1 – الإخوة منتوري
كليـــــــــة العلوم الد قيـقة

PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA
MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH
Constantine 1 University – Frères Mentouri
Faculty of Exact Sciences

ANNONCE DE SOUTENANCE

Conformément à la décision n° **85** du **30 Novembre 2025** autorisant la soutenance d'une thèse de doctorat, le Vice-doyennat chargé de la post-graduation, de la recherche scientifique et des relations extérieures, a n n o n c e la soutenance publique d'une thèse de doctorat en Sciences le :

Jeudi 22 Janvier 2026 à 16H00

Lieu : Salle de conférences sise au Campus Chaab erssas - Constantine 1 – Frères M e n t o u r i .
F i l i è r e : C H I M I E
Spécialité : Chimie Physique et Analytique

Doctorant : **BOUZIANE Mokhtar**

Sur le thème : « Evolution des retombées de poussières et d'éléments métalliques dans la Ville de Didouche Mourad ».

Devant le jury :

	Nom et prénoms	Grade	Etablissement d'appartenance
Président	ZERTAL Abdennour	Professeur	Université Constantine1, Frères Mentouri
Directeur de thèse	**ALI-KHODJA Hocine**	**Professeur**	**Université Constantine1, Frères Mentouri**
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Abstract

Given the critical environmental and health implications of atmospheric deposition, this study examined the long-term variations in atmospheric dust and trace element deposition in Didouche Mourad, Algeria, from 21/6/ 2002–20/6/2003 (P1) to 21/12/2017–20/12/2018 (P2), a period marked by significant industrial and infrastructural changes.

Using a network of 10 sampling sites, we conducted two-year-long measurement campaigns to quantify the deposition rates of dust and seven trace elements (Pb, Mn, Cr, Ni, Cu, Co, and Cd). We used a combination of techniques, including spatiotemporal analysis and enrichment factor calculations, to understand how local changes affect air quality.

The results showed a substantial reduction in the average cross-site deposition rates between the two periods: dust (61 %), Co (98 %), Cd (97 %), Pb (90 %), Mn (76 %), Cu (62 %), Ni (51 %), and Cr (50 %). This improvement was attributed to specific interventions, including new road construction and upgraded industrial filtration systems.

Shifts in seasonal deposition patterns were observed, with elevated levels in summer and autumn during 2002–2003, changing to peaks in summer and winter in 2017–2018. Four main pollution sources were identified through PCA for each period: agricultural activity (P1), soil dust (P2), Saharan dust (P1, P2), vehicular emissions (P1), cement plant (P2), and industrial processes (P1, P2). This study provides crucial insights into the long-term effectiveness of air quality management strategies in industrial areas and offers a model for assessing and mitigating atmospheric pollution in similar global settings.

The comprehensive approach and extended timeframe of this study significantly contribute to our understanding of the complex dynamics of atmospheric deposition in evolving urban-industrial environments.